COHEN and WOLF P.C.
ATTORNEYS AT LAW

JULIE D. KOHLER

PLEASE REPLY TO: Bridgeport
WRITER'S DIRECT DIAL: (203) 337-4157
E-Mail Address: jkohler@cohenandwolf.com

April 1, 2015

Attorney Melanie Bachman
Acting Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

Re: Notice of Exempt Modification
Town of Quinebaug Valley Emergency/T-Mobile equipment upgrade
Site ID CT11156A
818 Providence Pike, Killingly Connecticut

Dear Attorney Bachman:

This office represents T-Mobile Northeast LLC ("T-Mobile") and has been retained to file exempt modification filings with the Connecticut Siting Council on its behalf.

In this case, the Quinebaug Valley Emergency owns the existing guyed tower and related facility located at 818 Providence Pike, Killingly, Connecticut (Latitude: 41.791417; Longitude: -71.822361). T-Mobile intends to replace (3) antennas and add related equipment at this existing telecommunications facility in Killingly ("Killingly Facility"). Please accept this letter as notification, pursuant to R.C.S.A. § 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the Town Manager, Sean Hendricks. Quinebaug Valley Emergency is also the property owner.

The existing Killingly Facility consists of a 187 foot tall guyed tower.[1] T-Mobile plans to replace three (3) antennas and add three (3) smart bias Ts at a centerline of 145 feet. T-Mobile will install a BBU cabinet on an existing concrete pad and mount three (3) RRU's (remote radio units) on a proposed H-frame, all within the existing compound area. T-Mobile will also add coax cable. (See the plans revised to March 11, 2015 attached hereto as Exhibit A). The existing Killingly Facility is structurally capable of supporting T-Mobile's proposed modifications, as indicated in the structural analysis dated March 31, 2015 and attached hereto as Exhibit B.

The planned modifications to the Killingly Facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modification will not increase the height of the tower. T-Mobile's

[1] The Connecticut Siting Council database does not contain any Dockets or Petitions relative to this Facility however there is a notice of intent captioned TS-VER-069-140117.

proposed modifications will be installed at a centerline of 145 feet, merely modifying existing antennas located at the same 145 foot elevation. The enclosed tower drawing confirms that the proposed modification will not increase the height of the tower.

2. The proposed modifications will not require an extension of the site boundaries. T-Mobile's modifications are all within the existing compound area as shown on Sheets LE-1.

3. The proposed modification to the Killingly Facility will not increase the noise levels at the existing facility by six decibels or more.

4. The operation of the replacement antennas will not increase the total radio frequency (RF) power density, measured at the base of the tower, to a level at or above the applicable standard. According to a Radio Frequency Emissions Analysis Report prepared by EBI dated March 16, 2015, T-Mobile's operations would add 4.72% of the FCC Standard. Therefore, the calculated "worst case" power density for the planned combined operation at the site including all of the proposed antennas would be 18.71% of the FCC Standard as calculated for a mixed frequency site as evidenced by the engineering exhibit attached hereto as Exhibit C.

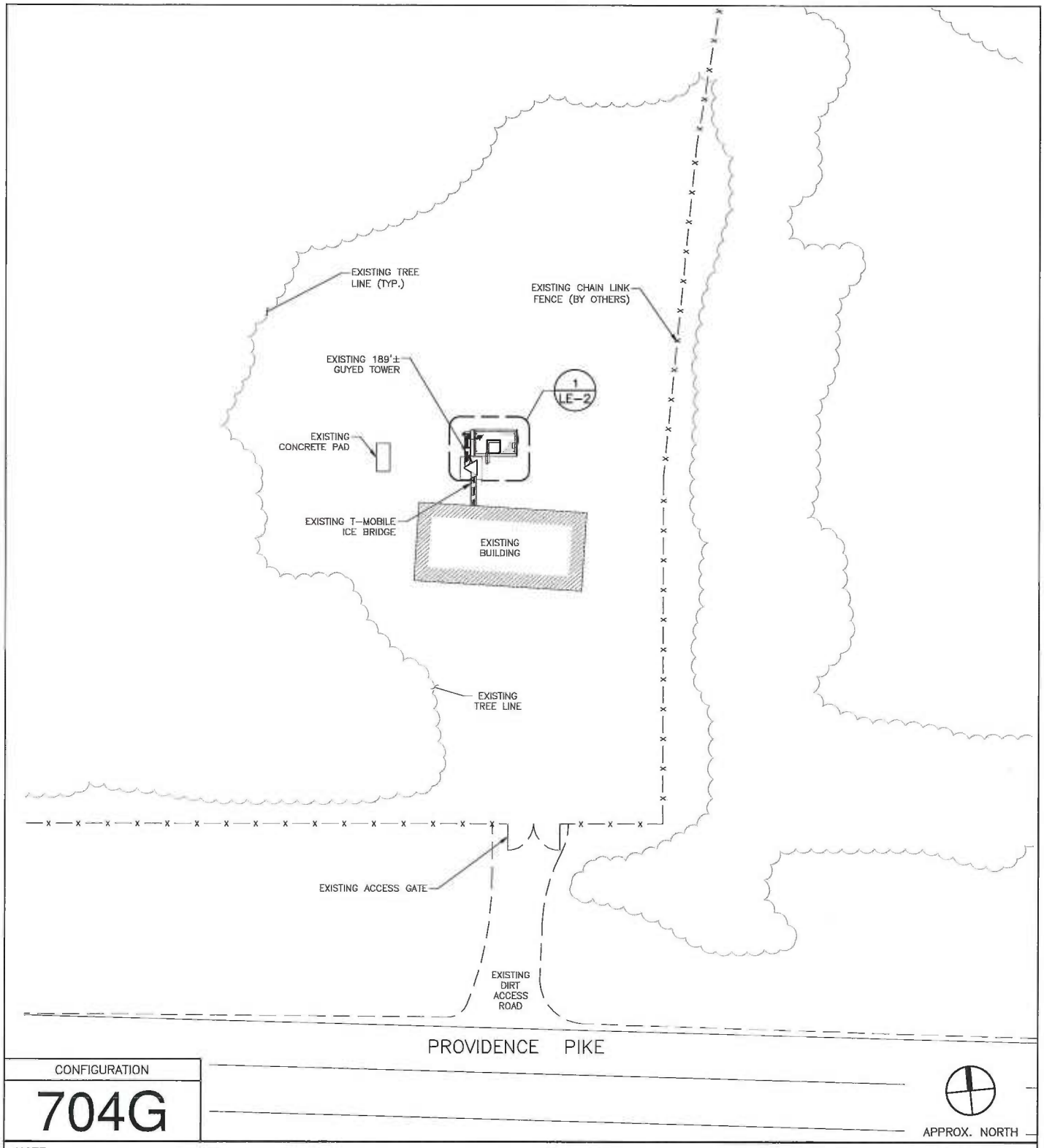
For the foregoing reasons, T-Mobile respectfully submits that the proposed replacement antennas and additional equipment at the Killingly Facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Upon acknowledgement by the Council of this proposed exempt modification, T-Mobile shall commence construction approximately sixty days from the date of the Council's notice of acknowledgement.

Sincerely,

Julie D. Kohler, Esq.

cc: Town of Killingly, Town Manager Sean Hendricks
Quinebaug Valley Emergency
Jamie Ford, EBI Consulting

EXHIBIT A



CONFIGURATION

704G

NOTE:
ALL EQUIPMENT LOCATIONS ARE APPROXIMATE AND ARE SUBJECT TO APPROVAL BY LESSEE/LICENSEE STRUCTURAL AND RF ENGINEERS.

EXISTING SITE PLAN

SCALE: 1:30

PREPARED BY:
EBI Consulting
environmental | engineering | due diligence
21 B Street | Burlington, MA 01803
Tel: (781) 273-2500 | Fax: (781) 273-3311
www.ebiconsulting.com
EBI JOB NO.: 8115000099

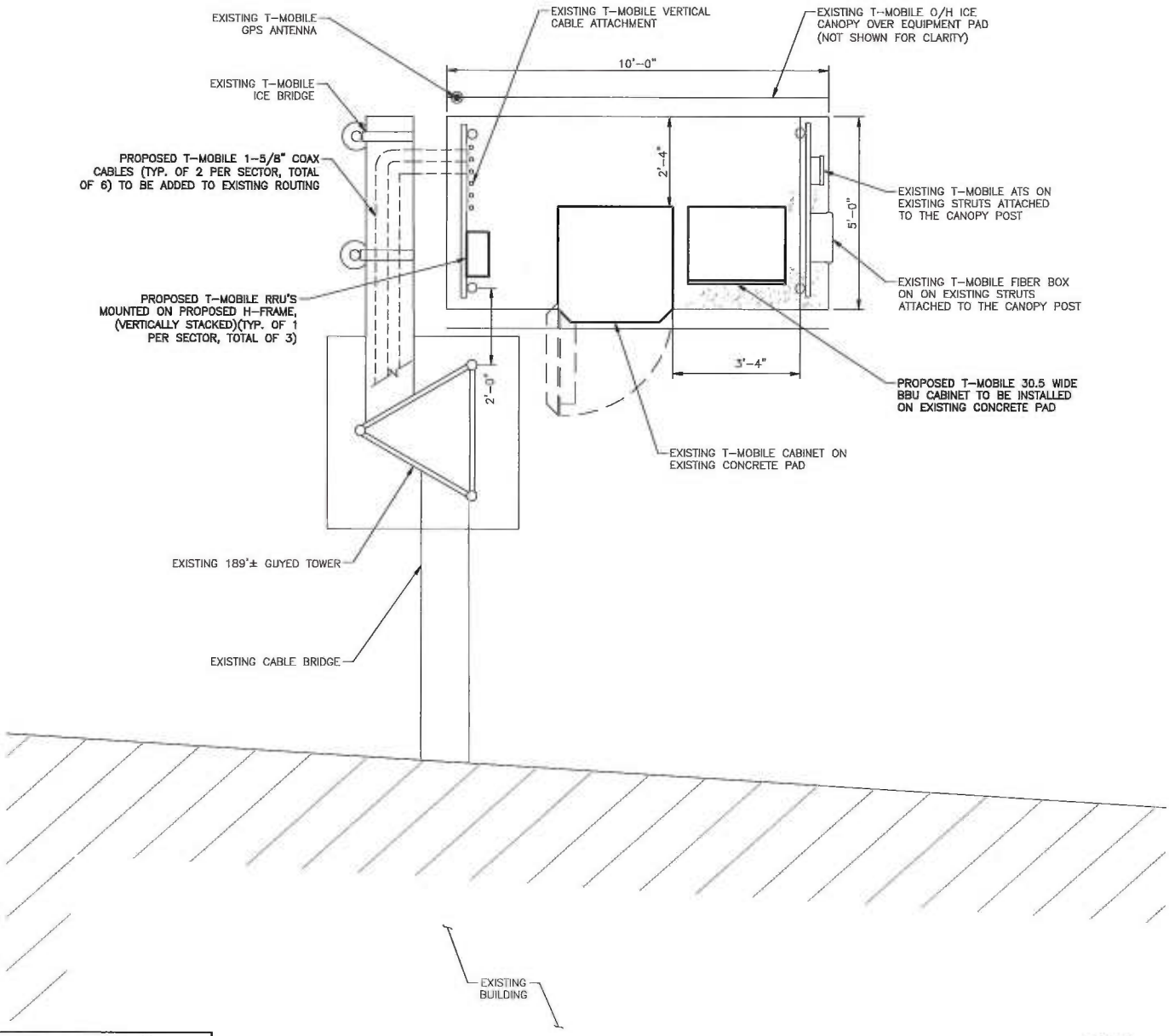
CLIENT:
T-Mobile Northeast, LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
860.692.7100

SITE INFO:
KILLINGLY/MARGARET HENR1
CT11156A
818 PROVIDENCE PIKE
KILLINGLY, CT 06239

SUBMITTALS			
NO.	DATE	DESCRIPTION	BY
A	03/11/15	FOR REVIEW	MK

DRAWN BY: MK
CHECKED BY: BB
DATE: 03/04/15

SHEET NO: LE-1



CONFIGURATION

704G

APPROX. NORTH

NOTE:
ALL EQUIPMENT LOCATIONS ARE APPROXIMATE AND ARE SUBJECT TO APPROVAL BY LESSEE/LICENSEE STRUCTURAL AND RF ENGINEERS.

EQUIPMENT PLAN

SCALE: 1/4" = 1'-0"

PREPARED BY:
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SITE INFO:
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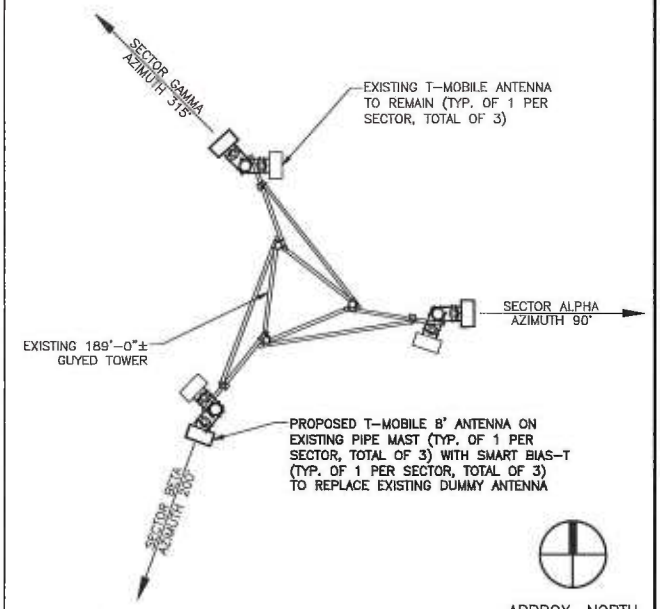
SUBMITTALS			
NO.	DATE	DESCRIPTION	BY
A	03/11/15	FOR REVIEW	MK

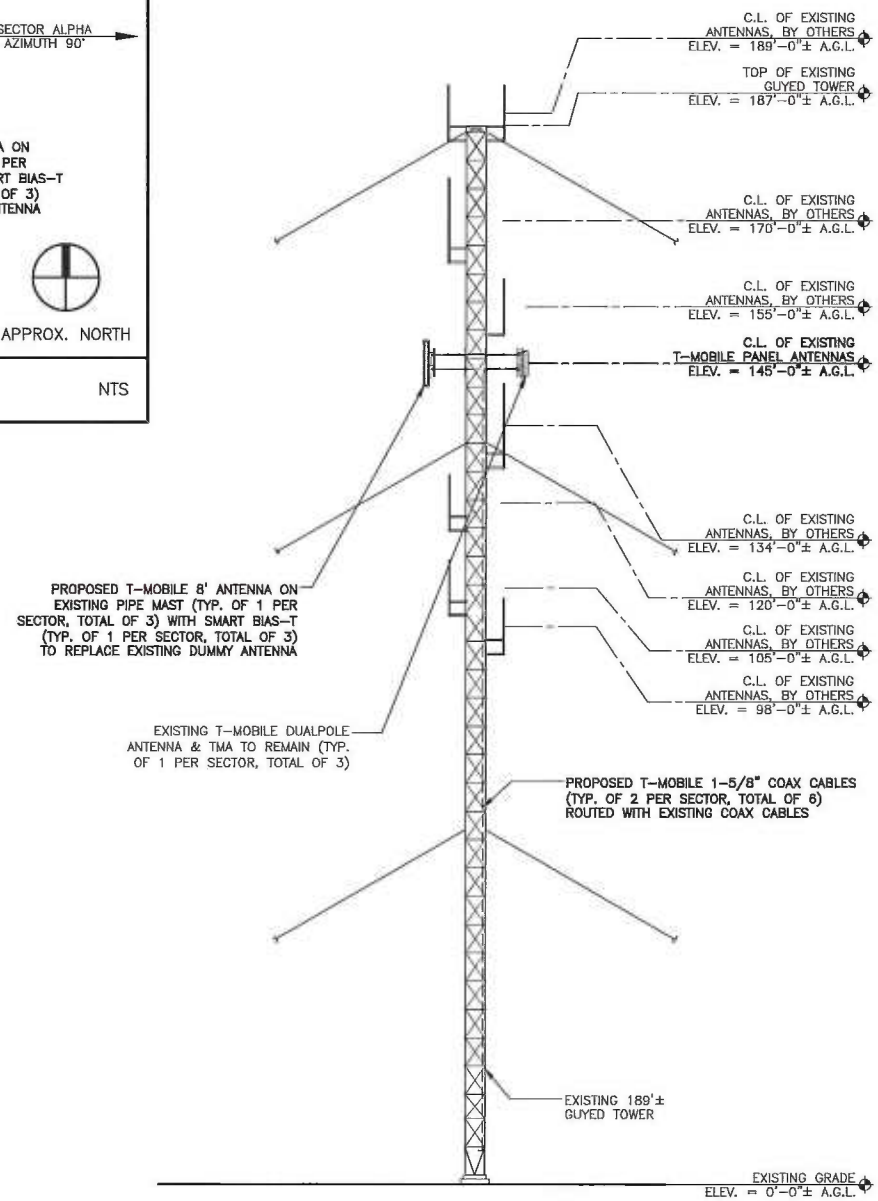
DRAWN BY: MK
CHECKED BY: BB
DATE: 03/04/15

SHEET NO: LE-1



ANTENNA CONFIGURATION

NTS



CONFIGURATION

704G

NOTE:
ALL EQUIPMENT LOCATIONS ARE APPROXIMATE AND ARE SUBJECT TO APPROVAL BY LESSEE/LICENSEE STRUCTURAL AND RF ENGINEERS.

TOWER ELEVATION

SCALE: 1/32" = 1'-0"

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EBI JOB NO.:
8115000099

CLIENT:
T-Mobile Northeast, LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
860.692.7100

SITE INFO:
KILLINGLY/MARGARET
HENR1
CT11156A
818 PROVIDENCE PIKE
KILLINGLY, CT 06239

SUBMITTALS			
NO.	DATE	DESCRIPTION	BY
A	03/11/15	FOR REVIEW	MK

DRAWN BY: MK
CHECKED BY: BB
DATE: 03/04/15

SHEET NO:
LE-2

EXHIBIT B

EBI Consulting
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STRUCTURAL ANALYSIS REPORT

March 31, 2015

T-Mobile, USA
35 Griffin Rd
South Bloomfield, CT 06002

Subject: Site #: CT 11156 A
EBI Reference #: 8115000099
Site Name: Killingly / Margaret Henr1
Address: 818 Providence Pike, Killingly, CT 06239

Dear Client:

In accordance with your request, EBI Consulting's structural engineers have prepared this structural analysis report for the 190' guyed tower for supporting the additional loads imposed by the proposed T-Mobile antenna, remote radio units, smart bias-t's, and related equipment cables, to be installed at the locations specified in the Construction Drawings accompanying this analysis. This analysis is in accordance with the following design codes governing this project:

- International Building Code, 2003 with CT 2005, 2009, 2011, and 2013 amendments
- ASCE 7-05
- AISC Steel Construction Manual, 13th Edition
- ANSI/TIA-222-F

The following sources of information were considered in preparing this analysis:

- Photographs taken by EBI personnel on a site visit on February 18, 2015
- Verizon Structural Analysis Report prepared by Centek Engineering, dated December 6, 2013
- Construction drawings prepared by ArcNet Architects, Inc., dated October 14, 1997

The tower was analyzed using ANSI/TIA-222-F for a wind speed of 85 mph without ice and with 1/2" radial ice at a reduced wind speed of 74 mph.

The analysis provided by EBI Engineering includes the following existing and proposed appurtenances, distributed among three sectors where applicable. For this analysis to be valid, a substantial amount of existing equipment must be removed, prior to installation of proposed equipment. The landlord has confirmed that the referenced equipment can and will be removed. Additionally, the tower modifications specified in the Verizon Wireless structural analysis report must be in place prior to T-Mobile's proposed equipment adjustments.

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Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
145.0	145.0	3	Commscope	LNX-6515DS-VTM W/ Mast Pipe	6**	1-5/8
	145	3	-	Smart Bias-T		
0	0	3	-	RRUS11-B12		

**Note= (6) Proposed 1-5/8" coax to be stacked on (6) existing 1-1/4" coax for a total of (2) rows of (6) coax each

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
189.0	194.0	2*	-	10' Omni Antenna*	3*	7/8*
		1*	-	10' Dipole Antenna*		
	189.0	3*	-	2' Side Mount Standoff*		
187.0	187.0	6	-	BXA-171063-12CF W/ Mast Pipe	2	1-5/8
		6	-	BXA-70063-6CF W/ Mast Pipe		
		1	-	DB-T1-6Z-8AB-0Z		
		3	-	RRH2x40-07-U		
		3	-	RRH2x40-AWS		
		3	-	PiRod 12' PCS T-Frame		
185.0	185.0	1*	-	6' Dipole Antenna*	1*	7/8*
161.0	168.5	1*	-	15' Dipole Antenna*	1*	1-1/4*
	161.0	1*	-	2' Side Mount Standoff*		

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Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
	156.0	1*	-	10' Omni Antenna*	1*	1/2*
160.0	160.0	1*	-	10' Dipole Antenna*	1*	7/8*
156.5	156.5	1*	-	6' Dipole Antenna*	1*	7/8*
149.0	149.0	2*	-	2' Side Mount Standoff*	2*	1/2*
		2*	-	10' Dipole Antenna*		
145.0	**145.0**	**3**	**-**	**ROHN 4-ft Side Arm**	**6**	**1-1/4**
		3	**-**	**RR90-17-02DP W/ Mast Pipe**		
		3*	-	RR90-17-02DP W/ Mast Pipe*		
		3	**-**	**D B2 TMA**		
		3*	-	D B2 TMA*		
142.0	147.0	1*	-	10' Omni Antenna*	1*	7/8*
136.0	136.0	1*	-	2' Side Mount Standoff*	1*	7/8*
	123.5	1*	-	25' Dipole Antenna*		
120.0	**120.0**	**2**	**-**	**US Army MARS**	**2**	**1/2**
117.0	129.5	1*	-	25' Omni Antenna*	1*	7/8*
	117.0	1*	-	2' Side Mount Standoff*		
110.0	110.0	1*	-	10' Sector Frame*	1*	7/8*
	97.5	1*	-	25' Dipole Antenna*		
106.0	106.0	1*	-	10' Dipole Antenna*	1*	1/2*
90.0	102.5	1*	-	25' Omni Antenna*	1*	1/2*

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Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
	90.0	1*	-	3' Side Mount Standoff*		
85.0	**85.0**	**2**	-	**US Army MARS**	**2**	**1/2**
80.0	80.0	1*	-	3' Yagi*	1*	1/2*
68.0	68.0	1*	-	3' Side Mount Standoff*	1*	1/2*
		1*	-	10' Dipole Antenna*		

NOTES:

* = Existing antennas / mounts/ equipment to be removed prior to installation of proposed equipment

Bold = Existing Antennas/ mounts/ equipment to remain

Summary of Results: (Refer to attached TNX Tower Analysis for detailed analysis results)

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T1	190.6 - 175.35	Leg	ROHN 2.5 X-STR	1	-14927.60	66498.57	22.4	Pass
T2	175.35 - 160.1	Leg	ROHN 2.5 X-STR	29	-13270.70	66498.57	20.0	Pass
T3	160.1 - 140.1	Leg	ROHN 2 STD	56	-34169.80	37604.33	90.9	Pass
T4	140.1 - 120.1	Leg	ROHN 2 STD	113	-36462.60	37555.67	97.1	Pass
T5	120.1 - 100.1	Leg	ROHN 2 STD	170	-28353.30	37537.54	75.5	Pass
T6	100.1 - 80.1	Leg	ROHN 2 STD	228	-33345.10	37531.28	88.8	Pass
T7	80.1 - 60.1	Leg	ROHN 2 X-STR	285	-31342.50	51431.54	60.9	Pass
T8	60.1 - 40.1	Leg	ROHN 2.5 STD	342	-34332.30	51062.96	67.2	Pass
T9	40.1 - 20.1	Leg	ROHN 2.5 STD	375	-32375.20	51062.96	63.4	Pass
T10	20.1 - 4.85	Leg	ROHN 2.5 STD	406	-29043.90	50903.13	57.1	Pass
T11	4.85 - 0	Leg	ROHN 2.5 X-STR	433	-30985.10	82667.32	37.5	Pass
T1	190.6 - 175.35	Diagonal	P1.5x.058	25	-2360.27	5298.14	44.5	Pass

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Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
							64.3 (b)	
T2	175.35 - 160.1	Diagonal	P1.5x.058	38	-1934.84	5298.14	36.5	Pass
							51.9 (b)	
T3	160.1 - 140.1	Diagonal	P1.5x.058	65	-2121.40	5242.38	40.5	Pass
							54.6 (b)	
T4	140.1 - 120.1	Diagonal	P1.5x.058	167	-1506.92	5242.38	28.7	Pass
							33.0 (b)	
T5	120.1 - 100.1	Diagonal	P1.5x.058	225	-751.60	5242.38	14.3	Pass
T6	100.1 - 80.1	Diagonal	P1.5x.058	252	-1210.82	5242.38	23.1	Pass
							29.6 (b)	
T7	80.1 - 60.1	Diagonal	P1.5x.058	335	-767.56	5242.38	14.6	Pass
T8	60.1 - 40.1	Diagonal	P1.5x.058	350	-1721.11	5309.43	32.4	Pass
							38.8 (b)	
T9	40.1 - 20.1	Diagonal	P1.5x.058	404	-1533.48	5309.43	28.9	Pass
							36.2 (b)	
T10	20.1 - 4.85	Diagonal	P1.5x.058	417	1089.13	8826.21	12.3	Pass
							29.8 (b)	
T2	175.35 - 160.1	Top Girt	P1.5x.058	32	-349.77	6191.77	5.6	Pass
							9.4 (b)	
T3	160.1 - 140.1	Top Girt	P1.5x.058	60	305.48	8826.21	3.5	Pass
							8.4 (b)	
T4	140.1 - 120.1	Top Girt	P1.5x.058	116	-2484.63	6142.88	40.4	Pass
							65.4 (b)	
T5	120.1 - 100.1	Top Girt	P1.5x.058	172	346.80	8826.21	3.9	Pass
							9.5 (b)	
T6	100.1 - 80.1	Top Girt	P1.5x.058	229	296.10	8826.21	3.4	Pass

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Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
							8.1 (b)	
T7	80.1 - 60.1	Top Girt	P1.5x.058	287	393.71	8826.21	4.5	Pass
							10.8 (b)	
T8	60.1 - 40.1	Top Girt	P1.5x.058	345	242.68	8826.21	2.7	Pass
							6.6 (b)	
T9	40.1 - 20.1	Top Girt	P1.5x.058	377	-370.90	6191.77	6.0	Pass
							13.6 (b)	
T10	20.1 - 4.85	Top Girt	P1.5x.058	410	240.53	8826.21	2.7	Pass
							6.6 (b)	
T11	4.85 - 0	Top Girt	14x3/16	436	2777.82	75581.10	3.7	Pass
T1	190.6 - 175.35	Bottom Girt	P1.5x.058	9	-275.32	6191.77	4.4	Pass
							8.8 (b)	
T2	175.35 - 160.1	Bottom Girt	P1.5x.058	34	-676.24	6191.77	10.9	Pass
							20.7 (b)	
T3	160.1 - 140.1	Bottom Girt	P1.5x.058	61	2465.94	8826.21	27.9	Pass
							67.5 (b)	
T4	140.1 - 120.1	Bottom Girt	P1.5x.058	119	272.75	8826.21	3.1	Pass
							7.5 (b)	
T5	120.1 - 100.1	Bottom Girt	P1.5x.058	176	366.25	8826.21	4.1	Pass
							10.0 (b)	
T6	100.1 - 80.1	Bottom Girt	P1.5x.058	233	449.27	8826.21	5.1	Pass
							12.3 (b)	
T7	80.1 - 60.1	Bottom Girt	P1.5x.058	289	324.51	8826.21	3.7	Pass
							8.9 (b)	
T8	60.1 - 40.1	Bottom Girt	P1.5x.058	347	628.51	8826.21	7.1	Pass
							17.2 (b)	

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Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T9	40.1 - 20.1	Bottom Girt	P1.5x.058	380	256.94	8826.21	2.9	Pass
							7.0 (b)	
T10	20.1 - 4.85	Bottom Girt	P1.5x.058	412	3939.21	8826.21	44.6	Pass
							71.7 (b)	
T11	4.85 - 0	Bottom Girt	14x3/16	439	-869.28	63486.65	7.7	Pass
T11	4.85 - 0	Mid Girt	14x3/16	443	-154.89	9245.91	1.7	Pass
T1	190.6 - 175.35	Guy A@189.985	1/2	450	12266.50	13450.00	91.2	Pass
T4	140.1 - 120.1	Guy A@139.485	1/2	460	10750.80	13450.00	79.9	Pass
T6	100.1 - 80.1	Guy A@87.3695	7/16	468	7193.11	10400.00	69.2	Pass
T8	60.1 - 40.1	Guy A@44.9464	3/8	474	4915.99	7700.00	63.8	Pass
T1	190.6 - 175.35	Guy B@189.985	1/2	449	12399.20	13450.00	92.2	Pass
T4	140.1 - 120.1	Guy B@139.485	1/2	455	10798.80	13450.00	80.3	Pass
T6	100.1 - 80.1	Guy B@87.3695	7/16	467	7350.41	10400.00	70.7	Pass
T8	60.1 - 40.1	Guy B@44.9464	3/8	473	4980.93	7700.00	64.7	Pass
T1	190.6 - 175.35	Guy C@189.985	1/2	448	12356.70	13450.00	91.9	Pass
T4	140.1 - 120.1	Guy C@139.485	1/2	451	10627.90	13450.00	79.0	Pass
T6	100.1 - 80.1	Guy C@87.3695	7/16	463	7293.25	10400.00	70.1	Pass
T8	60.1 - 40.1	Guy C@44.9464	3/8	469	4884.91	7700.00	63.4	Pass
T1	190.6 - 175.35	Top Guy Pull-Off@189.985	4 1/2x3/8	4	3362.80	48587.85	7.2	Pass
T6	100.1 - 80.1	Top Guy Pull-Off@87.3695	C4x5.4	464	2738.20	45780.55	6.3	Pass
T8	60.1 - 40.1	Top Guy Pull-Off@44.9464	C4x5.4	470	2492.47	45780.55	5.7	Pass
T4	140.1 - 120.1	Torque Arm Top@139.485	C10x15.3	457	-2605.30	76183.08	97.8	Pass
							Summary	
						Leg (T4)	97.1	Pass

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Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
						Diagonal (T1)	64.3	Pass
						Top Girt (T4)	65.4	Pass
						Bottom Girt (T10)	71.7	Pass
						Mid Girt (T11)	1.7	Pass
						Guy A (T1)	91.2	Pass
						Guy B (T1)	92.2	Pass
						Guy C (T1)	91.9	Pass
						Top Guy Pull-Off (T1)	7.2	Pass
						Torque Arm Top (T4)	97.8	Pass
						Bolt Checks	71.7	Pass
						RATING =	**97.8**	**Pass**

The maximum stress under the proposed conditions and configurations is **97.8%** of the tower capacity, governed by the Torque Arm Top (T4), and is considered **adequate**.

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Foundation:

The foundation reactions are summarized below:

Reaction	2013 Analysis Centek 12/6/13 (TIA-222 Rev F)	Current analysis loads (TIA 222 Rev F)	% of existing
Axial	75 K	84.5 K	+113%
Base Shear	1K	0.8 K	+80%
Guy Anchor Horizontal, Inner	8 K	8.9 K	+111%
Guy Anchor Horizontal, Outer	17 K	17.7 K	+104%
Guy Anchor Uplift, Inner	7 K	8.2 K	+117%
Guy Anchor Uplift, Outer	26 K	27.5 K	+106%

From Centek's Structural Analysis, dated 12/16/13, it was noted that the existing tower foundation is 2'-0" diameter x 3'-9" long concrete pier (1'-0" of pier above grade) with a 4'-0" x 4'-0" x 1'-3" thick reinforced concrete pad bearing directly on the existing sub grade. The bottom of footing is 4'-0" below grade. The tower reaction from the current analysis exceeded the tower reactions from the prior analysis, **but when reanalyzed, the tower foundation is at 84.9% of the allowable soil bearing capacity and is adequate for new equipment loads listed in this analysis.**

Additionally, guy wire loading is transferred to six existing 7'-0" x 4'-0" x 2'-0" thick concrete anchor support blocks, where the top of concrete block is 8'-0" below the grade. From our analysis, **the outer foundation anchor is at 65.3% of its capacity and the inner foundation anchor is at 32.8% of its capacity. Both inner foundation anchors and outer foundation anchors are adequate for new equipment loads listed in this analysis.**

Limitations and Assumptions:

The report is based on the following:

1. Tower is properly installed and maintained.
2. All members are as specified in the original design documents and are in good condition.
3. All required members are in place.
4. All bolts are in place and are tightly fastened.
5. Tower is in plumb condition.
6. All member protective coatings are in good condition.
7. All tower members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.
8. Modifications listed in the previous report have been installed.

EBI is not responsible for any modifications completed prior to or hereafter in which EBI is not or was not directly involved. Modifications include but are not limited to:

A. Adding antennas
B. Removing / replacing antennas
C. Adding coaxial cables

EBI hereby states that this document represents the entire report and that it assumes no liability for any factual changes that may occur after the date of this report. All representations, recommendations, and

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conclusions are based upon information contained and set forth herein. If you are aware of any information which conflicts with that which is contained herein, or you are aware of any defects arising from the original design, material, fabrication, or erection deficiencies, you should disregard this report and immediately contact EBI. EBI disclaims all liability for representation, recommendation, or conclusion not expressly stated herein.

THE CONCLUSION OF THE TOWER STRUCTURAL ANALYSIS IS THAT THE TOWER IS AT 97.8% CAPACITY FOR THE PROPOSED AND EXISTING LOADING AND IS CONSIDERED ADEQUATE.

Please feel free to contact our office should you have any questions.

Sincerely yours,
EBI Consulting
March 31, 2015

Brandon Kelsey, E.I.T.

STATE OF CONNECTICUT
RICHARD L. PETERMAN
No. 30077
LICENSED
PROFESSIONAL ENGINEER

3/31/15

Richard L. Peterman, P.E.
Professional Engineer

Attachment: Photograph Log, Calculations

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PHOTOGRAPH LOG

Photo 1: Existing guy tower.	
Photo 2: T-Mobile existing antennas.	

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Photo 3: Existing guy tower base.	

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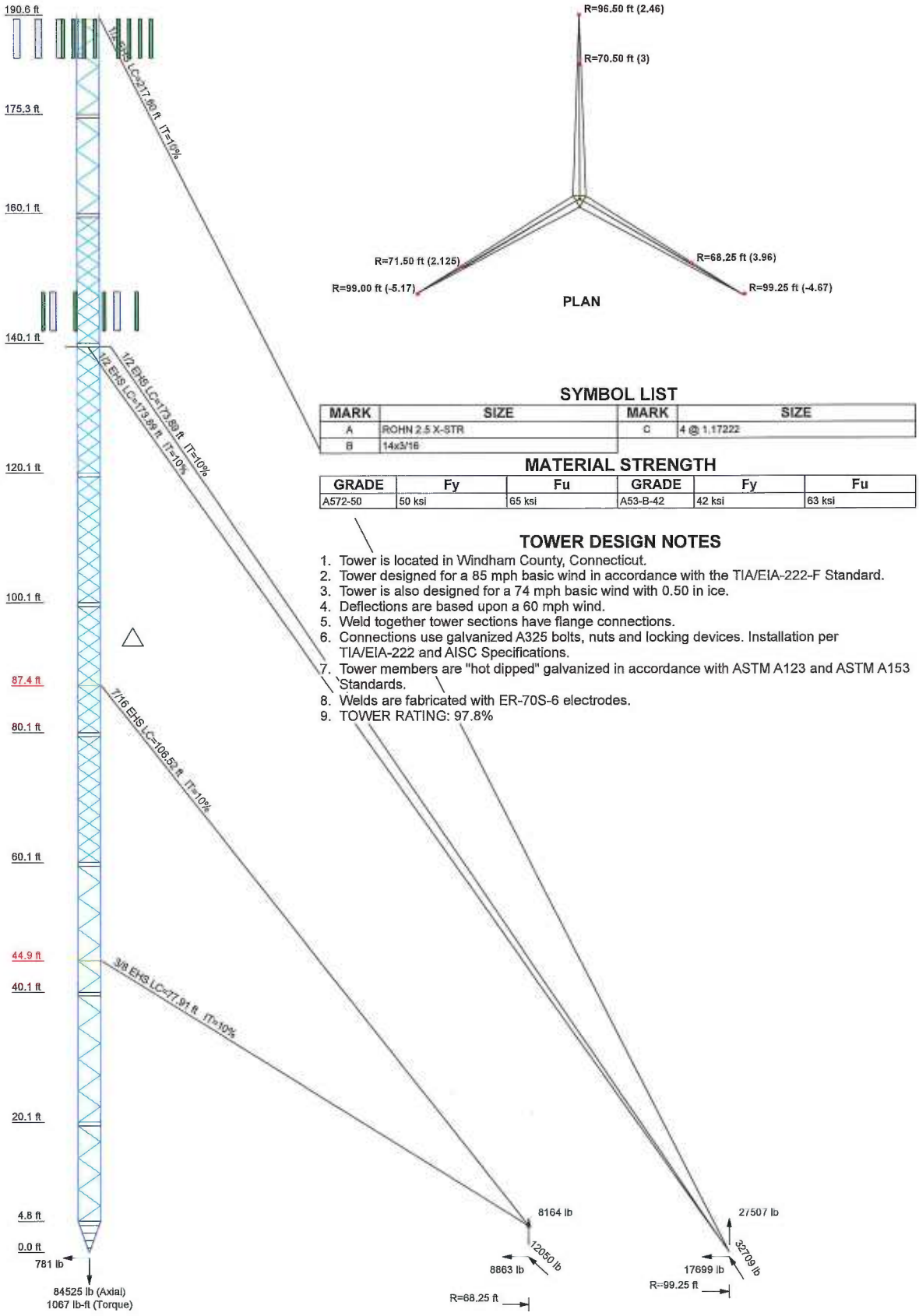
STRUCTURAL DESIGN PARAMETERS

BUILDING CODE:	2003 IBC WITH CT 2005, 2009, 2011, and 2013 AMENDMENTS ASCE7-05 TIA- 222-F	
OCCUPANCY CATEGORY:	II	
WIND LOADS:		
BASIC WIND SPEED (fastest mile), V:	85 MPH	(TIA 222 Rev F)
IMPORTANCE FACTOR, I:	1.0	
ICE LOADS:		
ICE THICKNESS	0.5 INCH	
BASIC WIND SPEED WITH ICE, Vi	74 MPH	

Section	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	A	ROHN 2.5 STD			ROHN 2 X-STR		ROHN 2 STD			ROHN 2.5 X-STR	
Leg Grade		A572-50									
Diagonals	N.A.	P1.5x.058									
Diagonal Grade	N.A.	A53-B-42									
Top Girts	B	P1.5x.058									N.A.
Mid Girts	B	N.A.									
Bottom Girts	B	P1.5x.058									
Top Guy Pull-Offs		N.A.		C4x5.4	N.A.	C4x5.4	N.A.			4 1/2x3/8	
Face Width (ft)											3.46
# Panels @ (ft)	C	6 @ 2.43924		56 @ 2.42318						12 @ 2.43924	
Weight (lb)	5117.1	352.0	467.1	513.3	501.5	475.4	419.2	747.8	419.2	437.5	487.8



PLAN

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	ROHN 2.5 X-STR	C	4 @ 1.17222
B	14x3/16		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A53-B-42	42 ksi	63 ksi

TOWER DESIGN NOTES

1. Tower is located in Windham County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 74 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 60 mph wind.
5. Weld together tower sections have flange connections.
6. Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications.
7. Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
8. Welds are fabricated with ER-70S-6 electrodes.
9. TOWER RATING: 97.8%

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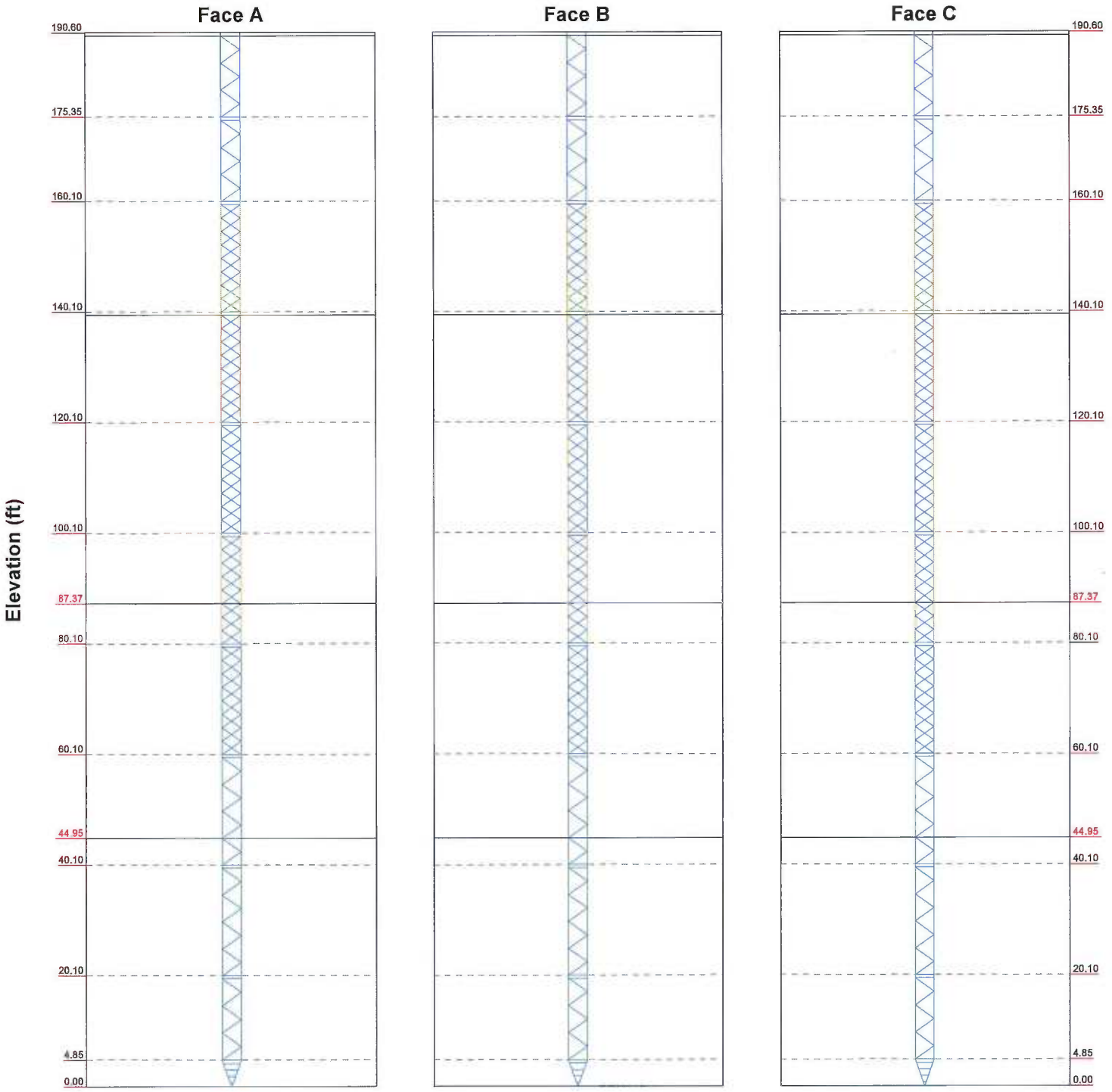
FAX: (781) 425-5141

Job: ***CT11156A***		
Project: ***8115000099***		
Client: T-Mobile	Drawn by: Kelly Shanahan	App'd:
Code: TIA/EIA-222-F	Date: 03/18/15	Scale: NTS
Path: S:\Active Projects\Turnkey T-Mobile CT\A&E\Phase II\CT11156A\Structural\CT11156A Guy Tower.eri		Dwg No. E-1

Stress Distribution Chart
0' - 190'7-3/16"

> 100% | 90%-100% | 75%-90% | 50%-75% | < 50% Overstress



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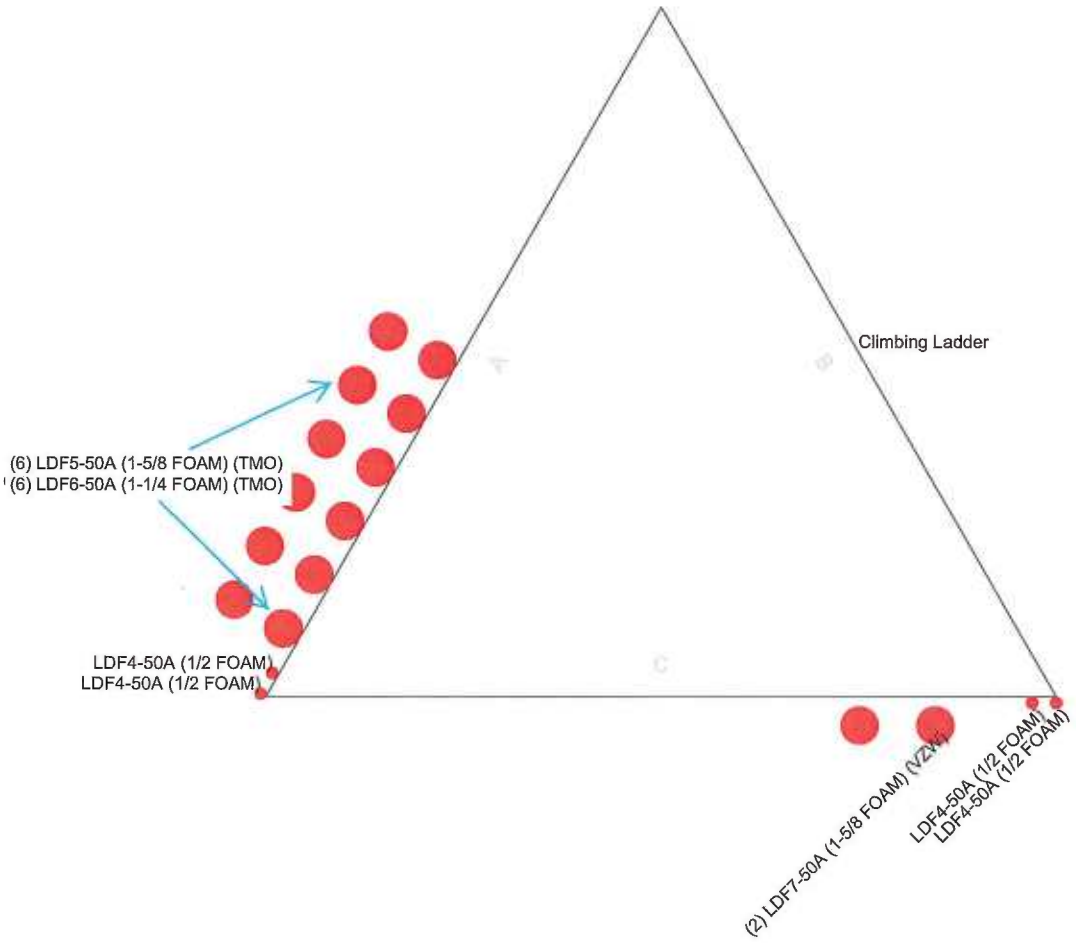
Path: S:\Active Projects\Turnkey T-Mobile CT\A&E\Phase II\CT11156A\Structural\CT11156A Guy Tower.er		Dwg No. E-8	

Feed Line Plan

_____ Round _____ Flat _____ App In Face _____ App Out Face



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Code: TIA/EIA-222-F	Date: 03/18/15		Scale: NTS
Path: S:\Active Projects\Turnkey T-Mobile CTV&E\Phase II\CT11156A\Structural\CT11156A Guy Tower.er			Dwg No. E-7

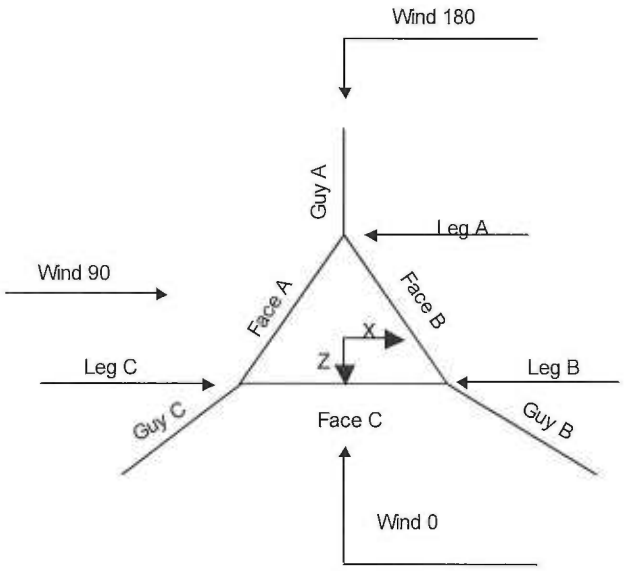
Tower Input Data

The main tower is a 3x guyed tower with an overall height of 190.60 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 3.46 ft at the top and tapered at the base.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

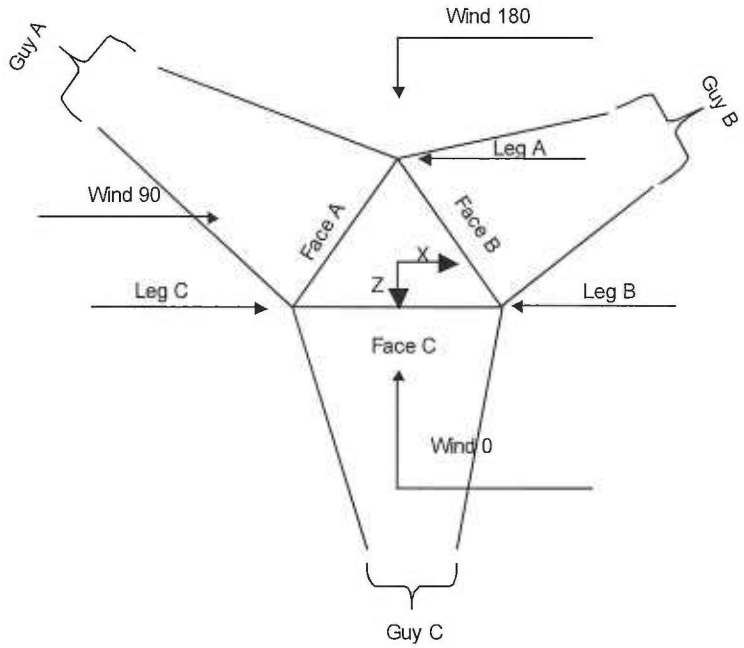
Tower is located in Windham County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 0.5000 in.
Ice density of 56 pcf.
A wind speed of 74 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
Weld together tower sections have flange connections..
Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications..
Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards..
Welds are fabricated with ER-70S-6 electrodes..
Pressures are calculated at each section.
Safety factor used in guy design is 2.
Stress ratio used in tower member design is 1.333.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Treat Feedline Bundles As Cylinder
Consider Moments - Horizontals	Assume Legs Pinned	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Diagonals	√ Assume Rigid Index Plate	√ Calculate Redundant Bracing Forces
Use Moment Magnification	√ Use Clear Spans For Wind Area	Ignore Redundant Members in FEA
√ Use Code Stress Ratios	√ Use Clear Spans For KL/r	√ SR Leg Bolts Resist Compression
√ Use Code Safety Factors - Guys	√ Retension Guys To Initial Tension	√ All Leg Panels Have Same Allowable
Escalate Ice	Bypass Mast Stability Checks	Offset Girt At Foundation
Always Use Max Kz	√ Use Azimuth Dish Coefficients	√ Consider Feedline Torque
Use Special Wind Profile	√ Project Wind Area of Appurt.	√ Include Angle Block Shear Check
√ Include Bolts In Member Capacity	√ Autocalc Torque Arm Areas	Poles
Leg Bolts Are At Top Of Section	√ SR Members Have Cut Ends	Include Shear-Torsion Interaction
√ Secondary Horizontal Braces Leg	√ Sort Capacity Reports By Component	Always Use Sub-Critical Flow
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Use Top Mounted Sockets
Add IBC .6D+W Combination	Use TIA-222-G Tension Splice Capacity Exemption	



Corner & Starmount Guyed Tower



Face Guyed

Tower Section Geometry

Tower Section	*Tower Elevation*	*Assembly Database*	*Description*	*Section Width*	*Number of Sections*	*Section Length*
	ft			*ft*		*ft*
T1	190.60-175.35			3.46	1	15.25
T2	175.35-160.10			3.46	1	15.25
T3	160.10-140.10			3.46	1	20.00
T4	140.10-120.10			3.46	1	20.00
T5	120.10-100.10			3.46	1	20.00
T6	100.10-80.10			3.46	1	20.00
T7	80.10-60.10			3.46	1	20.00
T8	60.10-40.10			3.46	1	20.00
T9	40.10-20.10			3.46	1	20.00
T10	20.10-4.85			3.46	1	15.25
T11	4.85-0.00			3.46	1	4.85

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	190.60-175.35	2.44	K Brace Left	No	Yes	7.3750	0.0000
T2	175.35-160.10	2.44	K Brace Left	No	Yes	7.3750	0.0000
T3	160.10-140.10	2.42	CX Brace	No	Yes	7.3750	0.0000
T4	140.10-120.10	2.42	CX Brace	No	Yes	7.3750	0.0000
T5	120.10-100.10	2.42	CX Brace	No	Yes	7.3750	0.0000
T6	100.10-80.10	2.42	CX Brace	No	Yes	7.3750	0.0000
T7	80.10-60.10	2.42	CX Brace	No	Yes	7.3750	0.0000
T8	60.10-40.10	2.42	K Brace Left	No	Yes	7.3750	0.0000
T9	40.10-20.10	2.42	K Brace Left	No	Yes	7.3750	0.0000
T10	20.10-4.85	2.44	K Brace Left	No	Yes	7.3750	0.0000
T11	4.85-0.00	1.17	X Brace	No	Yes	8.0000	8.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 190.60-175.35	Pipe	ROHN 2.5 X-STR	A572-50 (50 ksi)	Pipe	P1.5x.058	A53-B-42 (42 ksi)
T2 175.35-160.10	Pipe	ROHN 2.5 X-STR	A572-50 (50 ksi)	Pipe	P1.5x.058	A53-B-42 (42 ksi)
T3 160.10-140.10	Pipe	ROHN 2 STD	A572-50 (50 ksi)	Pipe	P1.5x.058	A53-B-42 (42 ksi)
T4 140.10-120.10	Pipe	ROHN 2 STD	A572-50 (50 ksi)	Pipe	P1.5x.058	A53-B-42 (42 ksi)
T5 120.10-100.10	Pipe	ROHN 2 STD	A572-50 (50 ksi)	Pipe	P1.5x.058	A53-B-42 (42 ksi)
T6 100.10-80.10	Pipe	ROHN 2 STD	A572-50 (50 ksi)	Pipe	P1.5x.058	A53-B-42 (42 ksi)
T7 80.10-60.10	Pipe	ROHN 2 X-STR	A572-50 (50 ksi)	Pipe	P1.5x.058	A53-B-42 (42 ksi)
T8 60.10-40.10	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	P1.5x.058	A53-B-42 (42 ksi)
T9 40.10-20.10	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	P1.5x.058	A53-B-42 (42 ksi)
T10 20.10-4.85	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	P1.5x.058	A53-B-42 (42 ksi)
T11 4.85-0.00	Pipe	ROHN 2.5 X-STR	A572-50 (50 ksi)	Pipe		A53-B-42 (42 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 190.60-175.35	Pipe	P1.5x.058	A53-B-42 (42 ksi)	Pipe	P1.5x.058	A53-B-42 (42 ksi)
T2 175.35-160.10	Pipe	P1.5x.058	A53-B-42 (42 ksi)	Pipe	P1.5x.058	A53-B-42 (42 ksi)
T3 160.10-140.10	Pipe	P1.5x.058	A53-B-42 (42 ksi)	Pipe	P1.5x.058	A53-B-42 (42 ksi)
T4 140.10-120.10	Pipe	P1.5x.058	A53-B-42	Pipe	P1.5x.058	A53-B-42

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T5 120.10-100.10	Pipe	P1.5x.058	(42 ksi) A53-B-42 (42 ksi)	Pipe	P1.5x.058	(42 ksi) A53-B-42 (42 ksi)
T6 100.10-80.10	Pipe	P1.5x.058	A53-B-42 (42 ksi)	Pipe	P1.5x.058	A53-B-42 (42 ksi)
T7 80.10-60.10	Pipe	P1.5x.058	A53-B-42 (42 ksi)	Pipe	P1.5x.058	A53-B-42 (42 ksi)
T8 60.10-40.10	Pipe	P1.5x.058	A53-B-42 (42 ksi)	Pipe	P1.5x.058	A53-B-42 (42 ksi)
T9 40.10-20.10	Pipe	P1.5x.058	A53-B-42 (42 ksi)	Pipe	P1.5x.058	A53-B-42 (42 ksi)
T10 20.10-4.85	Pipe	P1.5x.058	A53-B-42 (42 ksi)	Pipe	P1.5x.058	42 ksi modified for bearing on pipes (42 ksi)
T11 4.85-0.00	Flat Bar	14x3/16	A36 (36 ksi)	Flat Bar	14x3/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T11 4.85-0.00	2	Flat Bar	14x3/16	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
T1 190.60-175.35	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T2 175.35-160.10	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T3 160.10-140.10	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T4 140.10-120.10	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T5 120.10-100.10	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T6 100.10-80.10	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T7 80.10-60.10	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T8 60.10-40.10	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T9 40.10-20.10	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
T10 20.10-4.85	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T11 4.85-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	Yes	Yes	1	1	1	1	1	1	1	1
190.60-175.35				1	1	1	1	1	1	1
T2	Yes	Yes	1	1	1	1	1	1	1	1
175.35-160.10				1	1	1	1	1	1	1
T3	Yes	Yes	1	1	1	1	1	1	1	1
160.10-140.10				1	1	1	1	1	1	1
T4	Yes	Yes	1	1	1	1	1	1	1	1
140.10-120.10				1	1	1	1	1	1	1
T5	Yes	Yes	1	1	1	1	1	1	1	1
120.10-100.10				1	1	1	1	1	1	1
T6	Yes	Yes	1	1	1	1	1	1	1	1
100.10-80.10				1	1	1	1	1	1	1
T7	Yes	Yes	1	1	1	1	1	1	1	1
80.10-60.10				1	1	1	1	1	1	1
T8	Yes	Yes	1	1	1	1	1	1	1	1
60.10-40.10				1	1	1	1	1	1	1
T9	Yes	Yes	1	1	1	1	1	1	1	1
40.10-20.10				1	1	1	1	1	1	1
T10	Yes	Yes	1	1	1	1	1	1	1	1
20.10-4.85				1	1	1	1	1	1	1
T11 4.85-0.00	Yes	Yes	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
190.60-175.35														
T2	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
175.35-160.10														

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T3 160.10-140.10	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 140.10-120.10	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 120.10-100.10	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 100.10-80.10	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 80.10-60.10	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 60.10-40.10	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 40.10-20.10	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 20.10-4.85	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 4.85-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation	Connection Offsets							
	Diagonal				K-Bracing			
	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.
ft	in	in	in	in	in	in	in	in
T1 190.60-175.35	0.0000	0.0000	0.0000	0.0000	3.2500	0.0000	3.2500	0.0000
T2 175.35-160.10	0.0000	0.0000	0.0000	0.0000	3.2500	0.0000	3.2500	0.0000
T3 160.10-140.10	0.0000	0.0000	0.0000	0.0000	3.2500	0.0000	3.2500	0.0000
T4 140.10-120.10	0.0000	0.0000	0.0000	0.0000	3.2500	0.0000	3.2500	0.0000
T5 120.10-100.10	0.0000	0.0000	0.0000	0.0000	3.2500	0.0000	3.2500	0.0000
T6 100.10-80.10	0.0000	0.0000	0.0000	0.0000	3.2500	0.0000	3.2500	0.0000
T7 80.10-60.10	0.0000	0.0000	0.0000	0.0000	3.2500	0.0000	3.2500	0.0000
T8 60.10-40.10	0.0000	0.0000	0.0000	0.0000	3.2500	0.0000	3.2500	0.0000
T9 40.10-20.10	0.0000	0.0000	0.0000	0.0000	3.2500	0.0000	3.2500	0.0000
T10 20.10-4.85	0.0000	0.0000	0.0000	0.0000	3.2500	0.0000	3.2500	0.0000
T11 4.85-0.00	0.0000	0.0000	0.0000	0.0000	3.2500	0.0000	3.2500	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.6250	0	0.6250	0
190.60-175.35		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T2	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.6250	0	0.6250	0
175.35-160.10		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T3	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.6250	0	0.6250	0
160.10-140.10		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T4	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.6250	0	0.6250	0
140.10-120.10		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T5	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.6250	0	0.6250	0
120.10-100.10		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T6	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.6250	0	0.6250	0
100.10-80.10		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T7 80.10-60.10	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.6250	0	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T8 60.10-40.10	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.6250	0	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T9 40.10-20.10	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.6250	0	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T10 20.10-4.85	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.6250	0	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T11 4.85-0.00	Flange	0.7500	0	0.0000	0	0.0000	0	0.0000	0	0.6250	0	0.6250	0	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension lb	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
189.985	EHS	A	1/2	2690.00	10%	21000	0.517	209.81	96.50	0.0000	2.46	100%
		B	1/2	2690.00	10%	21000	0.517	217.41	99.25	0.0000	-4.67	100%
		C	1/2	2690.00	10%	21000	0.517	217.75	99.00	0.0000	-5.17	100%
139.485	EHS	A	1/2	2690.00	10%	21000	0.517	166.31	96.50	0.0000	2.46	100%
		B	1/2	2690.00	10%	21000	0.517	173.74	99.25	0.0000	-4.67	100%
		C	1/2	2690.00	10%	21000	0.517	174.02	99.00	0.0000	-5.17	100%
87.3695	EHS	A	7/16	2080.00	10%	21000	0.399	108.58	70.50	0.0000	3.00	100%
		B	7/16	2080.00	10%	21000	0.399	106.43	68.25	0.0000	3.96	100%
		C	7/16	2080.00	10%	21000	0.399	109.89	71.50	0.0000	2.13	100%
44.9464	EHS	A	3/8	1540.00	10%	21000	0.273	80.25	70.50	0.0000	3.00	100%
		B	3/8	1540.00	10%	21000	0.273	77.83	68.25	0.0000	3.96	100%
		C	3/8	1540.00	10%	21000	0.273	81.56	71.50	0.0000	2.13	100%

Guy Data(cont'd)

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
189.985 139.485	Corner Torque Arm	7.17	0.0000	Channel	A36 (36 ksi)	Channel	C10x15.3

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
87.3695	Corner						
44.9464	Corner						

Guy Data *(cont'd)*

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
189.99	A53-B-42 (42 ksi)	Pipe			No	A36 (36 ksi)	Flat Bar	4 1/2x3/8
139.49	A53-B-42 (42 ksi)	Pipe				A36 (36 ksi)	Flat Bar	
87.37	A242-42 (42 ksi)	Pipe			No	A36 (36 ksi)	Channel	C4x5.4
44.95	A53-B-42 (42 ksi)	Pipe			Yes	A36 (36 ksi)	Channel	C4x5.4

Guy Data *(cont'd)*

Guy Elevation ft	Cable Weight A lb	Cable Weight B lb	Cable Weight C lb	Cable Weight D lb	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
189.985	108.47	112.40	112.58		4.16 3.5 sec/pulse	4.46 3.6 sec/pulse	4.48 3.7 sec/pulse	
139.485	85.98	89.82	89.97		2.63 2.8 sec/pulse	2.86 2.9 sec/pulse	2.87 2.9 sec/pulse	
87.3695	43.33	42.47	43.85		1.12 1.8 sec/pulse	1.08 1.8 sec/pulse	1.15 1.9 sec/pulse	
44.9464	21.91	21.25	22.27		0.57 1.3 sec/pulse	0.54 1.3 sec/pulse	0.59 1.3 sec/pulse	

Guy Data *(cont'd)*

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal K_y
189.985	No	No			1	1	1	1
139.485	Yes	No	1	1	1	1	1	1
87.3695	No	No			1	1	1	1
44.9464	No	No			1	1	1	1

Guy Data *(cont'd)*

Guy Elevation ft	Torque-Arm Bolt Size in	Torque-Arm Number	Torque-Arm Net Width Deduct in	Torque-Arm U	Pull Off Bolt Size in	Pull Off Number	Pull Off Net Width Deduct in	Pull Off U	Diagonal Bolt Size in	Diagonal Number	Diagonal Net Width Deduct in	Diagonal U
189.985	0.7500 A325N	8	0.0000	1	0.5000 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
139.485	0.6250 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
87.3695	0.0000 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
44.9464	0.0000 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z psf	q_z Ice psf	Ice Thickness in
189.985	A	96.22	25	19	0.5000
	B	92.66	25	19	0.5000
	C	92.41	25	19	0.5000
139.485	A	70.97	23	17	0.5000
	B	67.41	23	17	0.5000
	C	67.16	23	17	0.5000
87.3695	A	45.18	20	15	0.5000
	B	45.66	20	15	0.5000
	C	44.75	20	15	0.5000
44.9464	A	23.97	18	14	0.5000
	B	24.45	18	14	0.5000
	C	23.54	18	14	0.5000

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
LDF7-50A (1-5/8 FOAM) (VZW)	C	Yes	Ar (CfAe)	8.00 - 187.00	0.5000	-0.3	2	2	1.9800	1.9800		0.82
LDF7-50A (1-5/8 FOAM) (TMO)**	A	Yes	Ar (CfAe)	8.00 - 145.00	0.0000	-0.22	12	6	1.2500 1.0000	1.9800		0.82
Climbing Ladder	B	Yes	Af (CfAe)	8.00 - 190.00	0.0000	0	1	1	0.2500	0.0000	0.0000	7.90
LDF4-50A (1/2 FOAM)	A	Yes	Ar (CfAe)	8.00 - 85.00	0.0000	-0.47	1	1	0.6300	0.6300		0.15
LDF4-50A (1/2 FOAM)	C	Yes	Ar (CfAe)	8.00 - 85.00	0.0000	-0.47	1	1	0.6300	0.6300		0.15
LDF4-50A (1/2 FOAM)	A	Yes	Ar (CfAe)	8.00 - 120.00	0.0000	-0.5	1	1	0.6300	0.6300		0.15
LDF4-50A (1/2 FOAM)	C	Yes	Ar (CfAe)	8.00 - 120.00	0.0000	-0.5	1	1	0.6300	0.6300		0.15

**Note: due to software modeling limitations, the proposed (6) 1-5/8" coax to be stacked on top of the (6) existing 1-1/4" coax was input as (12) 1-5/8" coax stacked in (2) rows of (6) coax each.

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	190.60-175.35	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	115.74
		C	3.845	0.000	0.000	0.000	19.11
T2	175.35-160.10	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	120.47
		C	5.032	0.000	0.000	0.000	25.01
T3	160.10-140.10	A	4.851	0.000	0.000	0.000	48.22
		B	0.000	0.000	0.000	0.000	158.00
		C	6.600	0.000	0.000	0.000	32.80
T4	140.10-120.10	A	19.800	0.000	0.000	0.000	196.80
		B	0.000	0.000	0.000	0.000	158.00
		C	6.600	0.000	0.000	0.000	32.80
T5	120.10-100.10	A	20.845	0.000	0.000	0.000	199.79
		B	0.000	0.000	0.000	0.000	158.00
		C	7.645	0.000	0.000	0.000	35.78
T6	100.10-80.10	A	21.107	0.000	0.000	0.000	200.54
		B	0.000	0.000	0.000	0.000	158.00
		C	7.907	0.000	0.000	0.000	36.53
T7	80.10-60.10	A	21.900	0.000	0.000	0.000	202.80
		B	0.000	0.000	0.000	0.000	158.00
		C	8.700	0.000	0.000	0.000	38.80
T8	60.10-40.10	A	21.900	0.000	0.000	0.000	202.80
		B	0.000	0.000	0.000	0.000	158.00
		C	8.700	0.000	0.000	0.000	38.80
T9	40.10-20.10	A	21.900	0.000	0.000	0.000	202.80
		B	0.000	0.000	0.000	0.000	158.00
		C	8.700	0.000	0.000	0.000	38.80
T10	20.10-4.85	A	13.249	0.000	0.000	0.000	122.69
		B	0.000	0.000	0.000	0.000	95.59
		C	5.263	0.000	0.000	0.000	23.47
T11	4.85-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	190.60-175.35	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.814	0.000	0.000	121.13
		C		5.786	0.000	0.000	0.000	54.40
T2	175.35-160.10	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.847	0.000	0.000	126.09
		C		7.574	0.000	0.000	0.000	71.22
T3	160.10-140.10	A	0.500	7.301	0.000	0.000	0.000	137.29
		B		0.000	1.111	0.000	0.000	165.36
		C		9.933	0.000	0.000	0.000	93.40
T4	140.10-120.10	A	0.500	29.800	0.000	0.000	0.000	560.39
		B		0.000	1.111	0.000	0.000	165.36
		C		9.933	0.000	0.000	0.000	93.40
T5	120.10-100.10	A	0.500	32.503	0.000	0.000	0.000	577.11
		B		0.000	1.111	0.000	0.000	165.36
		C		12.636	0.000	0.000	0.000	110.12
T6	100.10-80.10	A	0.500	33.182	0.000	0.000	0.000	581.31
		B		0.000	1.111	0.000	0.000	165.36

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
		C		13.316	0.000	0.000	0.000	114.32
T7	80.10-60.10	A	0.500	35.233	0.000	0.000	0.000	594.00
		B		0.000	1.111	0.000	0.000	165.36
		C		15.367	0.000	0.000	0.000	127.01
T8	60.10-40.10	A	0.500	35.233	0.000	0.000	0.000	594.00
		B		0.000	1.111	0.000	0.000	165.36
		C		15.367	0.000	0.000	0.000	127.01
T9	40.10-20.10	A	0.500	35.233	0.000	0.000	0.000	594.00
		B		0.000	1.111	0.000	0.000	165.36
		C		15.367	0.000	0.000	0.000	127.01
T10	20.10-4.85	A	0.500	21.316	0.000	0.000	0.000	359.37
		B		0.000	0.672	0.000	0.000	100.04
		C		9.297	0.000	0.000	0.000	76.84
T11	4.85-0.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00

Feed Line Shielding

Section	Elevation ft	Face	A_R ft^2	A_R Ice ft^2	A_F ft^2	A_F Ice ft^2
T1	190.60-175.35	A	0.000	0.000	0.000	0.000
		B	0.000	0.146	0.000	0.030
		C	0.263	0.691	0.095	0.142
T2	175.35-160.10	A	0.000	0.000	0.000	0.000
		B	0.000	0.162	0.000	0.000
		C	0.385	0.967	0.000	0.000
T3	160.10-140.10	A	0.653	1.638	0.000	0.000
		B	0.000	0.374	0.000	0.000
		C	0.888	2.228	0.000	0.000
T4	140.10-120.10	A	2.665	6.684	0.000	0.000
		B	0.000	0.374	0.000	0.000
		C	0.888	2.228	0.000	0.000
T5	120.10-100.10	A	2.805	7.291	0.000	0.000
		B	0.000	0.374	0.000	0.000
		C	1.029	2.834	0.000	0.000
T6	100.10-80.10	A	2.841	7.581	0.352	0.553
		B	0.000	0.381	0.000	0.028
		C	1.064	3.042	0.132	0.222
T7	80.10-60.10	A	2.947	7.903	0.000	0.000
		B	0.000	0.374	0.000	0.000
		C	1.171	3.447	0.000	0.000
T8	60.10-40.10	A	1.611	4.465	0.365	0.587
		B	0.000	0.211	0.000	0.028
		C	0.640	1.948	0.145	0.256
T9	40.10-20.10	A	1.611	4.319	0.000	0.000
		B	0.000	0.204	0.000	0.000
		C	0.640	1.884	0.000	0.000
T10	20.10-4.85	A	1.014	2.720	0.000	0.000
		B	0.000	0.129	0.000	0.000
		C	0.403	1.186	0.000	0.000
T11	4.85-0.00	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T1	190.60-175.35	1.1107	1.2017	1.2123	1.1165
T2	175.35-160.10	1.5293	1.6545	1.6070	1.5265
T3	160.10-140.10	-0.0104	1.3302	0.0743	1.1253
T4	140.10-120.10	-3.0406	1.2145	-2.6694	1.0538
T5	120.10-100.10	-2.9704	1.4770	-2.5758	1.4609
T6	100.10-80.10	-2.7949	1.4544	-2.4237	1.4731
T7	80.10-60.10	-2.9102	1.7167	-2.4991	1.8234
T8	60.10-40.10	-3.1649	1.8670	-2.9280	2.1371
T9	40.10-20.10	-3.3454	1.9735	-3.0796	2.2480
T10	20.10-4.85	-2.8601	1.6872	-2.6403	1.9273
T11	4.85-0.00	0.0000	0.0000	0.0000	0.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
BXA-70063-6CF W/ Mast Pipe (VZW)	A	From Leg	3.00 -6.00 0.00	0.0000	187.00	No Ice 1/2" Ice	7.76 8.30	5.88 6.68	52.00 113.00
BXA-70063-6CF W/ Mast Pipe (VZW)	B	From Leg	3.00 -6.00 0.00	0.0000	187.00	No Ice 1/2" Ice	7.76 8.30	5.88 6.68	52.00 113.00
BXA-70063-6CF W/ Mast Pipe (VZW)	C	From Leg	3.00 -6.00 0.00	0.0000	187.00	No Ice 1/2" Ice	7.76 8.30	5.88 6.68	52.00 113.00
BXA-171063-12CF W/ Mast Pipe (VZW)	A	From Leg	3.00 -4.00 0.00	0.0000	187.00	No Ice 1/2" Ice	4.80 5.25	5.35 6.15	72.74 118.96
BXA-171063-12CF W/ Mast Pipe (VZW)	B	From Leg	3.00 -4.00 0.00	0.0000	187.00	No Ice 1/2" Ice	4.80 5.25	5.35 6.15	72.74 118.96
BXA-171063-12CF W/ Mast Pipe (VZW)	C	From Leg	3.00 -4.00 0.00	0.0000	187.00	No Ice 1/2" Ice	4.80 5.25	5.35 6.15	72.74 118.96
BXA-70063-6CF W/ Mast Pipe (VZW)	A	From Leg	3.00 0.00 0.00	0.0000	187.00	No Ice 1/2" Ice	7.76 8.30	5.88 6.68	52.00 113.00
BXA-70063-6CF W/ Mast Pipe (VZW)	B	From Leg	3.00 0.00 0.00	0.0000	187.00	No Ice 1/2" Ice	7.76 8.30	5.88 6.68	52.00 113.00
BXA-70063-6CF W/ Mast Pipe (VZW)	C	From Leg	3.00 0.00 0.00	0.0000	187.00	No Ice 1/2" Ice	7.76 8.30	5.88 6.68	52.00 113.00
BXA-171063-12CF W/ Mast Pipe (VZW)	A	From Leg	3.00 4.00 0.00	0.0000	187.00	No Ice 1/2" Ice	4.80 5.25	5.35 6.15	72.74 118.96
BXA-171063-12CF W/ Mast Pipe	B	From Leg	3.00 4.00	0.0000	187.00	No Ice 1/2" Ice	4.80 5.25	5.35 6.15	72.74 118.96

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
(VZW)			0.00						
BXA-171063-12CF W/ Mast Pipe	C	From Leg	3.00 4.00	0.0000	187.00	No Ice 1/2" Ice	4.80 5.25	5.35 6.15	72.74 118.96
(VZW)			0.00						
RRH2x40-AWS	A	From Leg	3.00	0.0000	187.00	No Ice	2.52	1.59	40.00
(VZW)			-6.00 0.00			1/2" Ice	2.75	1.80	60.00
RRH2x40-AWS	B	From Leg	3.00	0.0000	187.00	No Ice	2.52	1.59	40.00
(VZW)			-6.00 0.00			1/2" Ice	2.75	1.80	60.00
RRH2x40-AWS	C	From Leg	3.00	0.0000	187.00	No Ice	2.52	1.59	40.00
(VZW)			-6.00 0.00			1/2" Ice	2.75	1.80	60.00
RRH2x40-07-U	A	From Leg	3.00	0.0000	187.00	No Ice	2.25	1.23	50.00
(VZW)			0.00 0.00			1/2" Ice	2.45	1.39	70.00
RRH2x40-07-U	B	From Leg	3.00	0.0000	187.00	No Ice	2.25	1.23	50.00
(VZW)			0.00 0.00			1/2" Ice	2.45	1.39	70.00
RRH2x40-07-U	C	From Leg	3.00	0.0000	187.00	No Ice	2.25	1.23	50.00
(VZW)			0.00 0.00			1/2" Ice	2.45	1.39	70.00
DB-T1-6Z-8AB-0Z	A	From Face	3.00	0.0000	187.00	No Ice	5.60	2.33	40.00
(VZW)			0.00 0.00			1/2" Ice	5.92	2.56	80.00
Pirod 12' PCS T-Frame (1)	A	From Leg	1.00	0.0000	187.00	No Ice	9.80	9.80	260.00
104569			0.00			1/2" Ice	14.80	14.80	360.00
(VZW)			0.00						
Pirod 12' PCS T-Frame (1)	B	From Leg	1.00	0.0000	187.00	No Ice	9.80	9.80	260.00
104569			0.00			1/2" Ice	14.80	14.80	360.00
(VZW)			0.00						
Pirod 12' PCS T-Frame (1)	C	From Leg	1.00	0.0000	187.00	No Ice	9.80	9.80	260.00
104569			0.00			1/2" Ice	14.80	14.80	360.00
(VZW)			0.00						
Commscope	A	From Leg	3.50	0.0000	145.00	No Ice	11.39	9.96	111.32
LNX-6515DS-VTM w/ pipe mast			-0.50 0.00			1/2" Ice	12.01	11.38	201.80
(TMO)									
Commscope	B	From Leg	3.50	0.0000	145.00	No Ice	11.39	9.96	111.32
LNX-6515DS-VTM w/ pipe mast			-0.50 0.00			1/2" Ice	12.01	11.38	201.80
(TMO)									
Commscope	C	From Leg	3.50	0.0000	145.00	No Ice	11.39	9.96	111.32
LNX-6515DS-VTM w/ pipe mast			-0.50 0.00			1/2" Ice	12.01	11.38	201.80
(TMO)									
RR90-17-02DP W/ Mast Pipe	A	From Leg	3.50	0.0000	145.00	No Ice	4.74	3.72	73.74
(TMO)			0.50 0.00			1/2" Ice	5.24	4.42	114.99
RR90-17-02DP W/ Mast Pipe	B	From Leg	3.50	0.0000	145.00	No Ice	4.74	3.72	73.74
(TMO)			0.50 0.00			1/2" Ice	5.24	4.42	114.99
RR90-17-02DP W/ Mast Pipe	C	From Leg	3.50	0.0000	145.00	No Ice	4.74	3.72	73.74
(TMO)			0.50 0.00			1/2" Ice	5.24	4.42	114.99
d B2 TMA	A	From Leg	2.00	0.0000	145.00	No Ice	0.82	0.39	10.00
(TMO)			0.50 0.00			1/2" Ice	0.95	0.49	20.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
d B2 TMA	B	From Leg	2.00	0.0000	145.00	No Ice	0.82	0.39	10.00
(TMO)			0.50			1/2" Ice	0.95	0.49	20.00
			0.00						
d B2 TMA	C	From Leg	2.00	0.0000	145.00	No Ice	0.82	0.39	10.00
(TMO)			5.00			1/2" Ice	0.95	0.49	20.00
			0.00						
ROHN 4-ft Side Arm	A	From Leg	2.00	0.0000	145.00	No Ice	5.28	5.28	70.00
(TMO)			0.00			1/2" Ice	7.88	7.88	80.00
			0.00						
ROHN 4-ft Side Arm	B	From Leg	2.00	0.0000	145.00	No Ice	5.28	5.28	70.00
(TMO)			0.00			1/2" Ice	7.88	7.88	80.00
			0.00						
ROHN 4-ft Side Arm	C	From Leg	2.00	0.0000	145.00	No Ice	5.28	5.28	70.00
(TMO)			0.00			1/2" Ice	7.88	7.88	80.00
			0.00						
US Army Mars	A	From Leg	1.00	0.0000	85.00	No Ice	0.25	0.25	31.00
			0.00			1/2" Ice	0.66	0.66	33.82
			0.00						
US Army Mars	C	From Leg	1.00	0.0000	85.00	No Ice	0.25	0.25	31.00
			0.00			1/2" Ice	0.66	0.66	33.82
			0.00						
US Army Mars	A	From Leg	1.00	0.0000	120.00	No Ice	0.25	0.25	31.00
			0.00			1/2" Ice	0.66	0.66	33.82
			0.00						
US Army Mars	C	From Leg	1.00	0.0000	120.00	No Ice	0.25	0.25	31.00
			0.00			1/2" Ice	0.66	0.66	33.82
			0.00						

Tower Pressures - No Ice

$G_H = 1.117$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg %	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
T1	182.98	1.631	30	56.419	A	1.208	10.665	7.307	61.55	0.000	0.000
190.60-175.35					B	1.208	10.665		61.55	0.000	0.000
					C	1.113	14.247		47.57	0.000	0.000
T2	167.73	1.591	29	56.419	A	0.000	11.068	7.307	66.02	0.000	0.000
175.35-160.10					B	0.000	11.068		66.02	0.000	0.000
					C	0.000	15.715		46.50	0.000	0.000
T3	150.10	1.542	29	73.158	A	0.000	20.895	7.917	37.89	0.000	0.000
160.10-140.10					B	0.000	16.697		47.41	0.000	0.000
					C	0.000	22.409		35.33	0.000	0.000
T4	130.10	1.48	27	73.158	A	0.000	33.832	7.917	23.40	0.000	0.000
140.10-120.10					B	0.000	16.697		47.41	0.000	0.000
					C	0.000	22.409		35.33	0.000	0.000
T5	110.10	1.411	26	73.158	A	0.000	34.737	7.917	22.79	0.000	0.000
120.10-100.10					B	0.000	16.697		47.41	0.000	0.000
					C	0.000	23.313		33.96	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T6	90.10	1.332	25	73.158	A	0.736	34.964	7.917	22.18	0.000	0.000
100.10-80.10					B	1.087	16.697		44.51	0.000	0.000
					C	0.956	23.540		32.32	0.000	0.000
T7 80.10-60.10	70.10	1.24	23	73.158	A	0.000	35.650	7.917	22.21	0.000	0.000
					B	0.000	16.697		47.41	0.000	0.000
					C	0.000	24.226		32.68	0.000	0.000
T8 60.10-40.10	50.10	1.127	21	73.992	A	0.708	34.610	9.583	27.13	0.000	0.000
					B	1.073	14.320		62.26	0.000	0.000
					C	0.928	22.380		41.11	0.000	0.000
T9 40.10-20.10	30.10	1	18	73.992	A	0.000	34.610	9.583	27.69	0.000	0.000
					B	0.000	14.320		66.92	0.000	0.000
					C	0.000	22.380		42.82	0.000	0.000
T10 20.10-4.85	12.48	1	18	56.419	A	0.000	23.303	7.307	31.36	0.000	0.000
					B	0.000	11.068		66.02	0.000	0.000
					C	0.000	15.928		45.88	0.000	0.000
T11 4.85-0.00	2.43	1	18	9.624	A	6.955	2.513	2.513	26.54	0.000	0.000
					B	6.955	2.513		26.54	0.000	0.000
					C	6.955	2.513		26.54	0.000	0.000

Tower Pressure - With Ice

$G_H = 1.117$

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	182.98	1.631	23	0.5000	57.689	A	1.208	15.714	9.849	58.20	0.000	0.000
190.60-175.35						B	1.992	15.568		56.09	0.000	0.000
						C	1.065	20.809		45.03	0.000	0.000
T2	167.73	1.591	22	0.5000	57.689	A	0.000	16.116	9.849	61.11	0.000	0.000
175.35-160.10						B	0.847	15.954		58.62	0.000	0.000
						C	0.000	22.724		43.34	0.000	0.000
T3	150.10	1.542	21	0.5000	74.825	A	0.000	31.548	11.250	35.66	0.000	0.000
160.10-140.10						B	1.111	25.510		42.26	0.000	0.000
						C	0.000	33.589		33.49	0.000	0.000
T4	130.10	1.48	21	0.5000	74.825	A	0.000	49.000	11.250	22.96	0.000	0.000
140.10-120.10						B	1.111	25.510		42.26	0.000	0.000
						C	0.000	33.589		33.49	0.000	0.000
T5	110.10	1.411	20	0.5000	74.825	A	0.000	51.097	11.250	22.02	0.000	0.000
120.10-100.10						B	1.111	25.510		42.26	0.000	0.000
						C	0.000	35.686		31.52	0.000	0.000
T6 100.10-80.10	90.10	1.332	18	0.5000	74.825	A	0.534	51.757	11.250	21.51	0.000	0.000
						B	2.171	25.775		40.26	0.000	0.000
						C	0.865	36.429		30.17	0.000	0.000
T7 80.10-60.10	70.10	1.24	17	0.5000	74.825	A	0.000	53.214	11.250	21.14	0.000	0.000
						B	1.111	25.510		42.26	0.000	0.000
						C	0.000	37.804		29.76	0.000	0.000
T8 60.10-40.10	50.10	1.127	16	0.5000	75.658	A	0.486	51.848	12.917	24.68	0.000	0.000
						B	2.157	20.868		56.10	0.000	0.000
						C	0.817	34.499		36.57	0.000	0.000
T9 40.10-20.10	30.10	1	14	0.5000	75.658	A	0.000	51.726	12.917	24.97	0.000	0.000
						B	1.111	20.607		59.47	0.000	0.000
						C	0.000	34.294		37.66	0.000	0.000
T10 20.10-4.85	12.48	1	14	0.5000	57.689	A	0.000	34.712	9.849	28.37	0.000	0.000
						B	0.672	15.987		59.12	0.000	0.000
						C	0.000	24.227		40.65	0.000	0.000

Section Elevation	z	K_Z	q_z	t_Z	A_G	Face	A_F	A_R	A_{leg}	Leg %	C_AA_A In Face	C_AA_A Out Face
ft	ft		psf	in	ft^2	e	ft^2	ft^2	ft^2		ft^2	ft^2
T11 4.85-0.00	2.43	1	14	0.5000	10.053	A	6.955	3.884	3.388	31.25	0.000	0.000
						B	6.955	3.884		31.25	0.000	0.000
						C	6.955	3.884		31.25	0.000	0.000

Tower Pressure - Service

$G_H = 1.117$

Section Elevation	z	K_Z	q_z	A_G	Face	A_F	A_R	A_{leg}	Leg %	C_AA_A In Face	C_AA_A Out Face
ft	ft		psf	ft^2	e	ft^2	ft^2	ft^2		ft^2	ft^2
T1	182.98	1.631	15	56.419	A	1.208	10.665	7.307	61.55	0.000	0.000
190.60-175.35					B	1.208	10.665		61.55	0.000	0.000
					C	1.113	14.247		47.57	0.000	0.000
T2	167.73	1.591	15	56.419	A	0.000	11.068	7.307	66.02	0.000	0.000
175.35-160.10					B	0.000	11.068		66.02	0.000	0.000
					C	0.000	15.715		46.50	0.000	0.000
T3	150.10	1.542	14	73.158	A	0.000	20.895	7.917	37.89	0.000	0.000
160.10-140.10					B	0.000	16.697		47.41	0.000	0.000
					C	0.000	22.409		35.33	0.000	0.000
T4	130.10	1.48	14	73.158	A	0.000	33.832	7.917	23.40	0.000	0.000
140.10-120.10					B	0.000	16.697		47.41	0.000	0.000
					C	0.000	22.409		35.33	0.000	0.000
T5	110.10	1.411	13	73.158	A	0.000	34.737	7.917	22.79	0.000	0.000
120.10-100.10					B	0.000	16.697		47.41	0.000	0.000
					C	0.000	23.313		33.96	0.000	0.000
T6	90.10	1.332	12	73.158	A	0.736	34.964	7.917	22.18	0.000	0.000
100.10-80.10					B	1.087	16.697		44.51	0.000	0.000
					C	0.956	23.540		32.32	0.000	0.000
T7 80.10-60.10	70.10	1.24	11	73.158	A	0.000	35.650	7.917	22.21	0.000	0.000
					B	0.000	16.697		47.41	0.000	0.000
					C	0.000	24.226		32.68	0.000	0.000
T8 60.10-40.10	50.10	1.127	10	73.992	A	0.708	34.610	9.583	27.13	0.000	0.000
					B	1.073	14.320		62.26	0.000	0.000
					C	0.928	22.380		41.11	0.000	0.000
T9 40.10-20.10	30.10	1	9	73.992	A	0.000	34.610	9.583	27.69	0.000	0.000
					B	0.000	14.320		66.92	0.000	0.000
					C	0.000	22.380		42.82	0.000	0.000
T10 20.10-4.85	12.48	1	9	56.419	A	0.000	23.303	7.307	31.36	0.000	0.000
					B	0.000	11.068		66.02	0.000	0.000
					C	0.000	15.928		45.88	0.000	0.000
T11 4.85-0.00	2.43	1	9	9.624	A	6.955	2.513	2.513	26.54	0.000	0.000
					B	6.955	2.513		26.54	0.000	0.000
					C	6.955	2.513		26.54	0.000	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	Face	e	C_F	R_R	D_F	D_R	A_E	F	w	Ctrl. Face
ft	lb	lb	e						ft^2	lb	plf	
T1	134.84	487.84	A	0.21	2.562	0.593	1	1	7.528	781.40	51.24	C

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
190.60-175.35			B	0.21	2.562	0.593	1	1	7.528			
			C	0.272	2.372	0.608	1	1	9.772			
T2	145.48	437.52	A	0.196	2.609	0.59	1	1	6.526	741.55	48.63	C
175.35-160.10			B	0.196	2.609	0.59	1	1	6.526			
			C	0.279	2.355	0.61	1	1	9.579			
T3	239.02	419.23	A	0.286	2.335	0.612	1	1	12.780	1005.13	50.26	C
160.10-140.10			B	0.228	2.504	0.597	1	1	9.961			
			C	0.306	2.279	0.618	1	1	13.845			
T4	387.60	419.23	A	0.462	1.954	0.679	1	1	22.975	1372.29	68.61	A
140.10-120.10		TA 328.71	B	0.228	2.504	0.597	1	1	9.961			
			C	0.306	2.279	0.618	1	1	13.845			
T5	393.57	419.23	A	0.475	1.935	0.685	1	1	23.794	1342.07	67.10	A
120.10-100.10			B	0.228	2.504	0.597	1	1	9.961			
			C	0.319	2.248	0.622	1	1	14.496			
T6	395.07	475.39	A	0.488	1.916	0.691	1	1	24.911	1313.98	65.70	A
100.10-80.10			B	0.243	2.458	0.6	1	1	11.108			
			C	0.335	2.207	0.627	1	1	15.720			
T7	399.60	501.45	A	0.487	1.917	0.691	1	1	24.638	1210.23	60.51	A
80.10-60.10			B	0.228	2.504	0.597	1	1	9.961			
			C	0.331	2.216	0.626	1	1	15.164			
T8	399.60	513.27	A	0.477	1.931	0.686	1	1	24.457	1099.50	54.98	A
60.10-40.10			B	0.208	2.569	0.592	1	1	9.552			
			C	0.315	2.257	0.621	1	1	14.818			
T9	399.60	457.11	A	0.468	1.945	0.682	1	1	23.589	948.16	47.41	A
40.10-20.10			B	0.194	2.618	0.589	1	1	8.436			
			C	0.302	2.289	0.617	1	1	13.801			
T10	241.76	351.97	A	0.413	2.039	0.657	1	1	15.310	644.89	42.29	A
20.10-4.85			B	0.196	2.609	0.59	1	1	6.526			
			C	0.282	2.344	0.611	1	1	9.726			
T11 4.85-0.00	0.00	306.10	A	0.984	2.067	1	1	1	9.469	397.68*	82.00	C
			B	0.984	2.067	1	1	1	9.469			
			C	0.984	2.067	1	1	1	9.469			
Sum Weight:	3136.14	5117.06			*2A_g limit					10856.89		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	134.84	487.84	A	0.21	2.562	0.593	0.8	1	7.286	763.60	50.07	C
190.60-175.35			B	0.21	2.562	0.593	0.8	1	7.286			
			C	0.272	2.372	0.608	0.8	1	9.550			
T2	145.48	437.52	A	0.196	2.609	0.59	0.8	1	6.526	741.55	48.63	C
175.35-160.10			B	0.196	2.609	0.59	0.8	1	6.526			
			C	0.279	2.355	0.61	0.8	1	9.579			
T3	239.02	419.23	A	0.286	2.335	0.612	0.8	1	12.780	1005.13	50.26	C
160.10-140.10			B	0.228	2.504	0.597	0.8	1	9.961			
			C	0.306	2.279	0.618	0.8	1	13.845			
T4	387.60	419.23	A	0.462	1.954	0.679	0.8	1	22.975	1372.29	68.61	A
140.10-120.10		TA 328.71	B	0.228	2.504	0.597	0.8	1	9.961			
			C	0.306	2.279	0.618	0.8	1	13.845			
T5	393.57	419.23	A	0.475	1.935	0.685	0.8	1	23.794	1342.07	67.10	A
120.10-100.10			B	0.228	2.504	0.597	0.8	1	9.961			
			C	0.319	2.248	0.622	0.8	1	14.496			
T6	395.07	475.39	A	0.488	1.916	0.691	0.8	1	24.764	1306.22	65.31	A

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
100.10-80.10			B	0.243	2.458	0.6	0.8	1	10.891			
			C	0.335	2.207	0.627	0.8	1	15.528			
T7	399.60	501.45	A	0.487	1.917	0.691	0.8	1	24.638	1210.23	60.51	A
80.10-60.10			B	0.228	2.504	0.597	0.8	1	9.961			
			C	0.331	2.216	0.626	0.8	1	15.164			
T8	399.60	513.27	A	0.477	1.931	0.686	0.8	1	24.316	1093.13	54.66	A
60.10-40.10			B	0.208	2.569	0.592	0.8	1	9.337			
			C	0.315	2.257	0.621	0.8	1	14.632			
T9	399.60	457.11	A	0.468	1.945	0.682	0.8	1	23.589	948.16	47.41	A
40.10-20.10			B	0.194	2.618	0.589	0.8	1	8.436			
			C	0.302	2.289	0.617	0.8	1	13.801			
T10	241.76	351.97	A	0.413	2.039	0.657	0.8	1	15.310	644.89	42.29	A
20.10-4.85			B	0.196	2.609	0.59	0.8	1	6.526			
			C	0.282	2.344	0.611	0.8	1	9.726			
T11 4.85-0.00	0.00	306.10	A	0.984	2.067	1	0.8	1	8.078	344.95	71.12	C
			B	0.984	2.067	1	0.8	1	8.078			
			C	0.984	2.067	1	0.8	1	8.078			
Sum Weight:	3136.14	5117.06								10772.23		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	134.84	487.84	A	0.21	2.562	0.593	0.85	1	7.346	768.05	50.36	C
190.60-175.35			B	0.21	2.562	0.593	0.85	1	7.346			
			C	0.272	2.372	0.608	0.85	1	9.605			
T2	145.48	437.52	A	0.196	2.609	0.59	0.85	1	6.526	741.55	48.63	C
175.35-160.10			B	0.196	2.609	0.59	0.85	1	6.526			
			C	0.279	2.355	0.61	0.85	1	9.579			
T3	239.02	419.23	A	0.286	2.335	0.612	0.85	1	12.780	1005.13	50.26	C
160.10-140.10			B	0.228	2.504	0.597	0.85	1	9.961			
			C	0.306	2.279	0.618	0.85	1	13.845			
T4	387.60	419.23	A	0.462	1.954	0.679	0.85	1	22.975	1372.29	68.61	A
140.10-120.10		TA 328.71	B	0.228	2.504	0.597	0.85	1	9.961			
			C	0.306	2.279	0.618	0.85	1	13.845			
T5	393.57	419.23	A	0.475	1.935	0.685	0.85	1	23.794	1342.07	67.10	A
120.10-100.10			B	0.228	2.504	0.597	0.85	1	9.961			
			C	0.319	2.248	0.622	0.85	1	14.496			
T6	395.07	475.39	A	0.488	1.916	0.691	0.85	1	24.801	1308.16	65.41	A
100.10-80.10			B	0.243	2.458	0.6	0.85	1	10.945			
			C	0.335	2.207	0.627	0.85	1	15.576			
T7	399.60	501.45	A	0.487	1.917	0.691	0.85	1	24.638	1210.23	60.51	A
80.10-60.10			B	0.228	2.504	0.597	0.85	1	9.961			
			C	0.331	2.216	0.626	0.85	1	15.164			
T8	399.60	513.27	A	0.477	1.931	0.686	0.85	1	24.351	1094.72	54.74	A
60.10-40.10			B	0.208	2.569	0.592	0.85	1	9.391			
			C	0.315	2.257	0.621	0.85	1	14.679			
T9	399.60	457.11	A	0.468	1.945	0.682	0.85	1	23.589	948.16	47.41	A
40.10-20.10			B	0.194	2.618	0.589	0.85	1	8.436			
			C	0.302	2.289	0.617	0.85	1	13.801			
T10	241.76	351.97	A	0.413	2.039	0.657	0.85	1	15.310	644.89	42.29	A
20.10-4.85			B	0.196	2.609	0.59	0.85	1	6.526			
			C	0.282	2.344	0.611	0.85	1	9.726			
T11 4.85-0.00	0.00	306.10	A	0.984	2.067	1	0.85	1	8.425	359.80	74.19	C
			B	0.984	2.067	1	0.85	1	8.425			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
Sum Weight:	3136.14	5117.06	C	0.984	2.067	1	0.85	1	8.425	10795.06		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	175.53	710.79	A	0.293	2.314	0.614	1	1	10.854	769.63	50.47	C
190.60-175.35			B	0.304	2.284	0.617	1	1	11.601			
			C	0.379	2.107	0.643	1	1	14.452			
T2	197.30	650.30	A	0.279	2.352	0.61	1	1	9.828	755.14	49.52	C
175.35-160.10			B	0.291	2.32	0.613	1	1	10.631			
			C	0.394	2.076	0.649	1	1	14.751			
T3	396.05	797.68	A	0.422	2.023	0.661	1	1	20.842	1066.28	53.31	C
160.10-140.10			B	0.356	2.158	0.635	1	1	17.299			
			C	0.449	1.975	0.673	1	1	22.598			
T4	819.15	797.68	A	0.655	1.78	0.789	1	1	38.647	1577.65	78.88	A
140.10-120.10		TA 465.74	B	0.356	2.158	0.635	1	1	17.299			
			C	0.449	1.975	0.673	1	1	22.598			
T5	852.59	797.68	A	0.683	1.776	0.808	1	1	41.277	1602.73	80.14	A
120.10-100.10			B	0.356	2.158	0.635	1	1	17.299			
			C	0.477	1.932	0.686	1	1	24.481			
T6	860.99	887.53	A	0.699	1.776	0.819	1	1	42.927	1573.98	78.70	A
100.10-80.10			B	0.373	2.119	0.641	1	1	18.696			
			C	0.498	1.902	0.697	1	1	26.246			
T7	886.37	879.91	A	0.711	1.777	0.828	1	1	44.059	1504.66	75.23	A
80.10-60.10			B	0.356	2.158	0.635	1	1	17.299			
			C	0.505	1.893	0.7	1	1	26.470			
T8	886.37	819.89	A	0.692	1.776	0.814	1	1	42.691	1323.52	66.18	A
60.10-40.10			B	0.304	2.285	0.617	1	1	15.038			
			C	0.467	1.947	0.681	1	1	24.315			
T9	886.37	730.04	A	0.684	1.776	0.808	1	1	41.814	1150.69	57.53	A
40.10-20.10			B	0.287	2.331	0.612	1	1	13.723			
			C	0.453	1.968	0.675	1	1	23.141			
T10	536.25	564.75	A	0.602	1.803	0.755	1	1	26.195	731.84	47.99	A
20.10-4.85			B	0.289	2.326	0.613	1	1	10.465			
			C	0.42	2.026	0.66	1	1	15.988			
T11 4.85-0.00	0.00	459.43	A	1	2.1	1	1	1	10.840	311.56*	64.24	C
			B	1	2.1	1	1	1	10.840			
			C	1	2.1	1	1	1	10.840			
Sum Weight:	6496.97	8561.42			*$2A_g$ limit					12367.67		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	175.53	710.79	A	0.293	2.314	0.614	0.8	1	10.612	758.28	49.72	C

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
190.60-175.35			B	0.304	2.284	0.617	0.8	1	11.202			
			C	0.379	2.107	0.643	0.8	1	14.239			
T2	197.30	650.30	A	0.279	2.352	0.61	0.8	1	9.828	755.14	49.52	C
175.35-160.10			B	0.291	2.32	0.613	0.8	1	10.462			
			C	0.394	2.076	0.649	0.8	1	14.751			
T3	396.05	797.68	A	0.422	2.023	0.661	0.8	1	20.842	1066.28	53.31	C
160.10-140.10			B	0.356	2.158	0.635	0.8	1	17.077			
			C	0.449	1.975	0.673	0.8	1	22.598			
T4	819.15	797.68	A	0.655	1.78	0.789	0.8	1	38.647	1577.65	78.88	A
140.10-120.10		TA 465.74	B	0.356	2.158	0.635	0.8	1	17.077			
			C	0.449	1.975	0.673	0.8	1	22.598			
T5	852.59	797.68	A	0.683	1.776	0.808	0.8	1	41.277	1602.73	80.14	A
120.10-100.10			B	0.356	2.158	0.635	0.8	1	17.077			
			C	0.477	1.932	0.686	0.8	1	24.481			
T6	860.99	887.53	A	0.699	1.776	0.819	0.8	1	42.821	1570.06	78.50	A
100.10-80.10			B	0.373	2.119	0.641	0.8	1	18.262			
			C	0.498	1.902	0.697	0.8	1	26.073			
T7	886.37	879.91	A	0.711	1.777	0.828	0.8	1	44.059	1504.66	75.23	A
80.10-60.10			B	0.356	2.158	0.635	0.8	1	17.077			
			C	0.505	1.893	0.7	0.8	1	26.470			
T8	886.37	819.89	A	0.692	1.776	0.814	0.8	1	42.594	1320.50	66.03	A
60.10-40.10			B	0.304	2.285	0.617	0.8	1	14.606			
			C	0.467	1.947	0.681	0.8	1	24.152			
T9	886.37	730.04	A	0.684	1.776	0.808	0.8	1	41.814	1150.69	57.53	A
40.10-20.10			B	0.287	2.331	0.612	0.8	1	13.501			
			C	0.453	1.968	0.675	0.8	1	23.141			
T10	536.25	564.75	A	0.602	1.803	0.755	0.8	1	26.195	731.84	47.99	A
20.10-4.85			B	0.289	2.326	0.613	0.8	1	10.331			
			C	0.42	2.026	0.66	0.8	1	15.988			
T11 4.85-0.00	0.00	459.43	A	1	2.1	1	0.8	1	9.449	307.46	63.39	C
			B	1	2.1	1	0.8	1	9.449			
			C	1	2.1	1	0.8	1	9.449			
Sum Weight:	6496.97	8561.42								12345.29		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	175.53	710.79	A	0.293	2.314	0.614	0.85	1	10.673	761.12	49.91	C
190.60-175.35			B	0.304	2.284	0.617	0.85	1	11.302			
			C	0.379	2.107	0.643	0.85	1	14.292			
T2	197.30	650.30	A	0.279	2.352	0.61	0.85	1	9.828	755.14	49.52	C
175.35-160.10			B	0.291	2.32	0.613	0.85	1	10.504			
			C	0.394	2.076	0.649	0.85	1	14.751			
T3	396.05	797.68	A	0.422	2.023	0.661	0.85	1	20.842	1066.28	53.31	C
160.10-140.10			B	0.356	2.158	0.635	0.85	1	17.132			
			C	0.449	1.975	0.673	0.85	1	22.598			
T4	819.15	797.68	A	0.655	1.78	0.789	0.85	1	38.647	1577.65	78.88	A
140.10-120.10		TA 465.74	B	0.356	2.158	0.635	0.85	1	17.132			
			C	0.449	1.975	0.673	0.85	1	22.598			
T5	852.59	797.68	A	0.683	1.776	0.808	0.85	1	41.277	1602.73	80.14	A
120.10-100.10			B	0.356	2.158	0.635	0.85	1	17.132			
			C	0.477	1.932	0.686	0.85	1	24.481			
T6	860.99	887.53	A	0.699	1.776	0.819	0.85	1	42.847	1571.04	78.55	A
100.10-80.10			B	0.373	2.119	0.641	0.85	1	18.371			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
			C	0.498	1.902	0.697	0.85	1	26.116			
T7	886.37	879.91	A	0.711	1.777	0.828	0.85	1	44.059	1504.66	75.23	A
80.10-60.10			B	0.356	2.158	0.635	0.85	1	17.132			
			C	0.505	1.893	0.7	0.85	1	26.470			
T8	886.37	819.89	A	0.692	1.776	0.814	0.85	1	42.618	1321.25	66.06	A
60.10-40.10			B	0.304	2.285	0.617	0.85	1	14.714			
			C	0.467	1.947	0.681	0.85	1	24.193			
T9	886.37	730.04	A	0.684	1.776	0.808	0.85	1	41.814	1150.69	57.53	A
40.10-20.10			B	0.287	2.331	0.612	0.85	1	13.556			
			C	0.453	1.968	0.675	0.85	1	23.141			
T10	536.25	564.75	A	0.602	1.803	0.755	0.85	1	26.195	731.84	47.99	A
20.10-4.85			B	0.289	2.326	0.613	0.85	1	10.364			
			C	0.42	2.026	0.66	0.85	1	15.988			
T11 4.85-0.00	0.00	459.43	A	1	2.1	1	0.85	1	9.796	311.56*	64.24	C
			B	1	2.1	1	0.85	1	9.796			
			C	1	2.1	1	0.85	1	9.796			
Sum Weight:	6496.97	8561.42			*$2A_g$ limit					12353.96		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	134.84	487.84	A	0.21	2.562	0.593	1	1	7.528	389.35	25.53	C
190.60-175.35			B	0.21	2.562	0.593	1	1	7.528			
			C	0.272	2.372	0.608	1	1	9.772			
T2	145.48	437.52	A	0.196	2.609	0.59	1	1	6.526	369.49	24.23	C
175.35-160.10			B	0.196	2.609	0.59	1	1	6.526			
			C	0.279	2.355	0.61	1	1	9.579			
T3	239.02	419.23	A	0.286	2.335	0.612	1	1	12.780	500.83	25.04	C
160.10-140.10			B	0.228	2.504	0.597	1	1	9.961			
			C	0.306	2.279	0.618	1	1	13.845			
T4	387.60	419.23	A	0.462	1.954	0.679	1	1	22.975	683.77	34.19	A
140.10-120.10		TA 328.71	B	0.228	2.504	0.597	1	1	9.961			
			C	0.306	2.279	0.618	1	1	13.845			
T5	393.57	419.23	A	0.475	1.935	0.685	1	1	23.794	668.71	33.44	A
120.10-100.10			B	0.228	2.504	0.597	1	1	9.961			
			C	0.319	2.248	0.622	1	1	14.496			
T6	395.07	475.39	A	0.488	1.916	0.691	1	1	24.911	654.72	32.74	A
100.10-80.10			B	0.243	2.458	0.6	1	1	11.108			
			C	0.335	2.207	0.627	1	1	15.720			
T7	399.60	501.45	A	0.487	1.917	0.691	1	1	24.638	603.02	30.15	A
80.10-60.10			B	0.228	2.504	0.597	1	1	9.961			
			C	0.331	2.216	0.626	1	1	15.164			
T8	399.60	513.27	A	0.477	1.931	0.686	1	1	24.457	547.85	27.39	A
60.10-40.10			B	0.208	2.569	0.592	1	1	9.552			
			C	0.315	2.257	0.621	1	1	14.818			
T9	399.60	457.11	A	0.468	1.945	0.682	1	1	23.589	472.44	23.62	A
40.10-20.10			B	0.194	2.618	0.589	1	1	8.436			
			C	0.302	2.289	0.617	1	1	13.801			
T10	241.76	351.97	A	0.413	2.039	0.657	1	1	15.310	321.33	21.07	A
20.10-4.85			B	0.196	2.609	0.59	1	1	6.526			
			C	0.282	2.344	0.611	1	1	9.726			
T11 4.85-0.00	0.00	306.10	A	0.984	2.067	1	1	1	9.469	198.15*	40.86	C
			B	0.984	2.067	1	1	1	9.469			

Section Elevation	Add Weight	Self Weight	Face	e	C_F	R_R	D_F	D_R	A_E	F	w	Ctrl. Face
ft	lb	lb							ft^2	lb	plf	
Sum Weight:	3136.14	5117.06	C	0.984	2.067 *$2A_g$ limit	1	1	1	9.469	5409.66		

Tower Forces - Service - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	Face	e	C_F	R_R	D_F	D_R	A_E	F	w	Ctrl. Face
ft	lb	lb							ft^2	lb	plf	
T1	134.84	487.84	A	0.21	2.562	0.593	0.8	1	7.286	380.48	24.95	C
190.60-175.35			B	0.21	2.562	0.593	0.8	1	7.286			
			C	0.272	2.372	0.608	0.8	1	9.550			
T2	145.48	437.52	A	0.196	2.609	0.59	0.8	1	6.526	369.49	24.23	C
175.35-160.10			B	0.196	2.609	0.59	0.8	1	6.526			
			C	0.279	2.355	0.61	0.8	1	9.579			
T3	239.02	419.23	A	0.286	2.335	0.612	0.8	1	12.780	500.83	25.04	C
160.10-140.10			B	0.228	2.504	0.597	0.8	1	9.961			
			C	0.306	2.279	0.618	0.8	1	13.845			
T4	387.60	419.23	A	0.462	1.954	0.679	0.8	1	22.975	683.77	34.19	A
140.10-120.10		TA 328.71	B	0.228	2.504	0.597	0.8	1	9.961			
			C	0.306	2.279	0.618	0.8	1	13.845			
T5	393.57	419.23	A	0.475	1.935	0.685	0.8	1	23.794	668.71	33.44	A
120.10-100.10			B	0.228	2.504	0.597	0.8	1	9.961			
			C	0.319	2.248	0.622	0.8	1	14.496			
T6	395.07	475.39	A	0.488	1.916	0.691	0.8	1	24.764	650.85	32.54	A
100.10-80.10			B	0.243	2.458	0.6	0.8	1	10.891			
			C	0.335	2.207	0.627	0.8	1	15.528			
T7	399.60	501.45	A	0.487	1.917	0.691	0.8	1	24.638	603.02	30.15	A
80.10-60.10			B	0.228	2.504	0.597	0.8	1	9.961			
			C	0.331	2.216	0.626	0.8	1	15.164			
T8	399.60	513.27	A	0.477	1.931	0.686	0.8	1	24.316	544.67	27.23	A
60.10-40.10			B	0.208	2.569	0.592	0.8	1	9.337			
			C	0.315	2.257	0.621	0.8	1	14.632			
T9	399.60	457.11	A	0.468	1.945	0.682	0.8	1	23.589	472.44	23.62	A
40.10-20.10			B	0.194	2.618	0.589	0.8	1	8.436			
			C	0.302	2.289	0.617	0.8	1	13.801			
T10	241.76	351.97	A	0.413	2.039	0.657	0.8	1	15.310	321.33	21.07	A
20.10-4.85			B	0.196	2.609	0.59	0.8	1	6.526			
			C	0.282	2.344	0.611	0.8	1	9.726			
T11 4.85-0.00	0.00	306.10	A	0.984	2.067	1	0.8	1	8.078	171.88	35.44	C
			B	0.984	2.067	1	0.8	1	8.078			
			C	0.984	2.067	1	0.8	1	8.078			
Sum Weight:	3136.14	5117.06								5367.48		

Tower Forces - Service - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	Face	e	C_F	R_R	D_F	D_R	A_E	F	w	Ctrl. Face
ft	lb	lb							ft^2	lb	plf	
T1	134.84	487.84	A	0.21	2.562	0.593	0.85	1	7.346	382.69	25.09	C

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
190.60-175.35			B	0.21	2.562	0.593	0.85	1	7.346			
			C	0.272	2.372	0.608	0.85	1	9.605			
T2	145.48	437.52	A	0.196	2.609	0.59	0.85	1	6.526	369.49	24.23	C
175.35-160.10			B	0.196	2.609	0.59	0.85	1	6.526			
			C	0.279	2.355	0.61	0.85	1	9.579			
T3	239.02	419.23	A	0.286	2.335	0.612	0.85	1	12.780	500.83	25.04	C
160.10-140.10			B	0.228	2.504	0.597	0.85	1	9.961			
			C	0.306	2.279	0.618	0.85	1	13.845			
T4	387.60	419.23	A	0.462	1.954	0.679	0.85	1	22.975	683.77	34.19	A
140.10-120.10		TA 328.71	B	0.228	2.504	0.597	0.85	1	9.961			
			C	0.306	2.279	0.618	0.85	1	13.845			
T5	393.57	419.23	A	0.475	1.935	0.685	0.85	1	23.794	668.71	33.44	A
120.10-100.10			B	0.228	2.504	0.597	0.85	1	9.961			
			C	0.319	2.248	0.622	0.85	1	14.496			
T6	395.07	475.39	A	0.488	1.916	0.691	0.85	1	24.801	651.82	32.59	A
100.10-80.10			B	0.243	2.458	0.6	0.85	1	10.945			
			C	0.335	2.207	0.627	0.85	1	15.576			
T7	399.60	501.45	A	0.487	1.917	0.691	0.85	1	24.638	603.02	30.15	A
80.10-60.10			B	0.228	2.504	0.597	0.85	1	9.961			
			C	0.331	2.216	0.626	0.85	1	15.164			
T8	399.60	513.27	A	0.477	1.931	0.686	0.85	1	24.351	545.47	27.27	A
60.10-40.10			B	0.208	2.569	0.592	0.85	1	9.391			
			C	0.315	2.257	0.621	0.85	1	14.679			
T9	399.60	457.11	A	0.468	1.945	0.682	0.85	1	23.589	472.44	23.62	A
40.10-20.10			B	0.194	2.618	0.589	0.85	1	8.436			
			C	0.302	2.289	0.617	0.85	1	13.801			
T10	241.76	351.97	A	0.413	2.039	0.657	0.85	1	15.310	321.33	21.07	A
20.10-4.85			B	0.196	2.609	0.59	0.85	1	6.526			
			C	0.282	2.344	0.611	0.85	1	9.726			
T11 4.85-0.00	0.00	306.10	A	0.984	2.067	1	0.85	1	8.425	179.28	36.96	C
			B	0.984	2.067	1	0.85	1	8.425			
			C	0.984	2.067	1	0.85	1	8.425			
Sum Weight:	3136.14	5117.06								5378.85		

Force Totals (Does not include forces on guys)

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Torques lb-ft
Leg Weight	2962.57			
Bracing Weight	2154.49			
Total Member Self-Weight	5117.06			
Guy Weight	1060.06			
Total Weight	12070.87			
Wind 0 deg - No Ice		-48.02	-17294.15	-2190.32
Wind 30 deg - No Ice		8602.30	-14899.62	-1364.11
Wind 60 deg - No Ice		14927.86	-8563.16	-174.34
Wind 90 deg - No Ice		17287.77	48.02	1063.14
Wind 120 deg - No Ice		15049.21	8688.66	2018.28
Wind 150 deg - No Ice		8685.47	14947.64	2427.25
Wind 180 deg - No Ice		48.02	17209.49	2188.48
Wind 210 deg - No Ice		-8602.30	14899.62	1364.11
Wind 240 deg - No Ice		-15001.19	8605.49	172.04
Wind 270 deg - No Ice		-17287.77	-48.02	-1063.14
Wind 300 deg - No Ice		-14975.88	-8646.33	-2014.14
Wind 330 deg - No Ice		-8685.47	-14947.64	-2427.25

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Torques lb-ft
Member Ice	3444.36			
Guy Ice	1336.20			
Total Weight Ice	21782.03			
Wind 0 deg - Ice		-37.01	-18181.20	-2269.67
Wind 30 deg - Ice		9073.06	-15715.01	-1300.24
Wind 60 deg - Ice		15744.50	-9047.36	16.89
Wind 90 deg - Ice		18210.22	37.01	1330.19
Wind 120 deg - Ice		15800.89	9122.65	2288.16
Wind 150 deg - Ice		9137.16	15752.01	2630.44
Wind 180 deg - Ice		37.01	18158.82	2269.28
Wind 210 deg - Ice		-9073.06	15715.01	1300.24
Wind 240 deg - Ice		-15763.89	9058.55	-18.50
Wind 270 deg - Ice		-18210.22	-37.01	-1330.19
Wind 300 deg - Ice		-15781.51	-9111.46	-2286.18
Wind 330 deg - Ice		-9137.16	-15752.01	-2630.44
Total Weight	12070.87			
Wind 0 deg - Service		-23.93	-8617.16	-1091.37
Wind 30 deg - Service		4286.27	-7424.03	-679.69
Wind 60 deg - Service		7438.10	-4266.76	-86.87
Wind 90 deg - Service		8613.98	23.93	529.73
Wind 120 deg - Service		7498.57	4329.30	1005.65
Wind 150 deg - Service		4327.71	7447.96	1209.42
Wind 180 deg - Service		23.93	8574.97	1090.45
Wind 210 deg - Service		-4286.27	7424.03	679.69
Wind 240 deg - Service		-7474.64	4287.86	85.72
Wind 270 deg - Service		-8613.98	-23.93	-529.73
Wind 300 deg - Service		-7462.03	-4308.21	-1003.58
Wind 330 deg - Service		-4327.71	-7447.96	-1209.42

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice+Guy
3	Dead+Wind 30 deg - No Ice+Guy
4	Dead+Wind 60 deg - No Ice+Guy
5	Dead+Wind 90 deg - No Ice+Guy
6	Dead+Wind 120 deg - No Ice+Guy
7	Dead+Wind 150 deg - No Ice+Guy
8	Dead+Wind 180 deg - No Ice+Guy
9	Dead+Wind 210 deg - No Ice+Guy
10	Dead+Wind 240 deg - No Ice+Guy
11	Dead+Wind 270 deg - No Ice+Guy
12	Dead+Wind 300 deg - No Ice+Guy
13	Dead+Wind 330 deg - No Ice+Guy
14	Dead+Ice+Temp+Guy
15	Dead+Wind 0 deg+Ice+Temp+Guy
16	Dead+Wind 30 deg+Ice+Temp+Guy
17	Dead+Wind 60 deg+Ice+Temp+Guy
18	Dead+Wind 90 deg+Ice+Temp+Guy
19	Dead+Wind 120 deg+Ice+Temp+Guy
20	Dead+Wind 150 deg+Ice+Temp+Guy
21	Dead+Wind 180 deg+Ice+Temp+Guy
22	Dead+Wind 210 deg+Ice+Temp+Guy

Comb. No.	Description
23	Dead+Wind 240 deg+Ice+Temp+Guy
24	Dead+Wind 270 deg+Ice+Temp+Guy
25	Dead+Wind 300 deg+Ice+Temp+Guy
26	Dead+Wind 330 deg+Ice+Temp+Guy
27	Dead+Wind 0 deg - Service+Guy
28	Dead+Wind 30 deg - Service+Guy
29	Dead+Wind 60 deg - Service+Guy
30	Dead+Wind 90 deg - Service+Guy
31	Dead+Wind 120 deg - Service+Guy
32	Dead+Wind 150 deg - Service+Guy
33	Dead+Wind 180 deg - Service+Guy
34	Dead+Wind 210 deg - Service+Guy
35	Dead+Wind 240 deg - Service+Guy
36	Dead+Wind 270 deg - Service+Guy
37	Dead+Wind 300 deg - Service+Guy
38	Dead+Wind 330 deg - Service+Guy

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
T1	190.6 - 175.35	Leg	Max Tension	2	2107.15	480.54	-208.71
			Max. Compression	17	-14927.60	-63.47	-79.71
			Max. Mx	6	-9881.69	1224.04	289.34
			Max. My	2	-9815.11	-293.61	-1272.61
			Max. Vy	11	1231.70	255.41	-2.30
			Max. Vx	2	1200.69	-738.83	29.32
		Diagonal	Max Tension	5	2348.17	0.00	0.00
			Max. Compression	11	-2360.27	0.00	0.00
			Max. Mx	19	1075.72	3.93	0.00
			Max. My	15	386.56	0.00	0.05
			Max. Vy	19	-3.71	0.00	0.00
			Max. Vx	15	-0.04	0.00	0.00
		Bottom Girt	Max Tension	16	322.20	0.00	0.00
			Max. Compression	9	-275.32	0.00	0.00
			Max. Mx	14	11.37	3.17	0.00
			Max. My	26	-260.39	0.00	-0.00
			Max. Vy	14	3.66	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
		Guy A	Bottom Tension	21	12059.01		
			Top Tension	21	12266.46		
			Top Cable Vert	21	11062.29		
			Top Cable Norm	21	5300.17		
			Top Cable Tan	21	0.29		
			Bot Cable Vert	21	-10588.12		
			Bot Cable Norm	21	5771.59		
			Bot Cable Tan	21	0.29		
		Guy B	Bottom Tension	25	12183.90		
			Top Tension	25	12399.22		
			Top Cable Vert	25	11202.52		
			Top Cable Norm	25	5314.52		
			Top Cable Tan	25	2.82		
			Bot Cable Vert	25	-10714.65		
			Bot Cable Norm	25	5800.31		
			Bot Cable Tan	25	2.82		
		Guy C	Bottom Tension	18	12142.45		
			Top Tension	18	12356.68		
			Top Cable Vert	18	11162.37		
			Top Cable Norm	18	5299.29		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Top Cable Tan	18	81.25		
			Bot Cable Vert	18	-10700.52		
			Bot Cable Norm	18	5734.46		
			Bot Cable Tan	18	232.07		
		Top Guy Pull-Off	Max Tension	26	3362.87	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	761.10	11.89	0.00
			Max. My	26	634.96	0.00	-0.00
			Max. Vy	14	-13.74	0.00	0.00
			Max. Vx	26	0.00	0.00	0.00
T2	175.35 - 160.1	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	19	-13270.75	238.52	171.85
			Max. Mx	18	-5477.61	297.47	-54.21
			Max. My	21	-4486.70	-9.31	303.28
			Max. Vy	18	673.60	-202.31	-60.14
			Max. Vx	15	-651.74	-62.44	208.60
		Diagonal	Max Tension	18	1896.86	0.00	0.00
			Max. Compression	20	-1934.84	0.00	0.00
			Max. Mx	19	1330.23	3.93	0.00
			Max. My	19	-3.17	0.00	-0.04
			Max. Vy	19	-3.71	0.00	0.00
			Max. Vx	19	-0.04	0.00	0.00
		Top Girt	Max Tension	25	342.39	0.00	0.00
			Max. Compression	19	-349.78	0.00	0.00
			Max. Mx	14	11.43	3.17	0.00
			Max. My	26	329.03	0.00	-0.00
			Max. Vy	14	3.66	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
		Bottom Girt	Max Tension	19	757.34	0.00	0.00
			Max. Compression	18	-676.24	0.00	0.00
			Max. Mx	14	7.47	3.17	0.00
			Max. My	26	-675.23	0.00	-0.00
			Max. Vy	14	3.66	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
T3	160.1 - 140.1	Leg	Max Tension	12	14165.60	44.82	24.14
			Max. Compression	19	-34169.81	-148.34	-74.68
			Max. Mx	18	-4401.88	297.45	-54.18
			Max. My	15	-13918.30	-25.92	310.48
			Max. Vy	24	-916.16	294.25	-60.02
			Max. Vx	15	-974.40	-25.92	310.48
		Diagonal	Max Tension	3	1996.06	0.00	0.00
			Max. Compression	5	-2121.40	0.00	0.00
			Max. Mx	19	816.38	3.92	0.00
			Max. My	15	-44.84	0.00	0.04
			Max. Vy	19	-3.71	0.00	0.00
			Max. Vx	15	-0.04	0.00	0.00
		Top Girt	Max Tension	18	305.48	0.00	0.00
			Max. Compression	7	-141.42	0.00	0.00
			Max. Mx	14	53.54	3.17	0.00
			Max. My	26	-28.01	0.00	-0.00
			Max. Vy	14	3.66	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
		Bottom Girt	Max Tension	21	2465.94	0.00	0.00
			Max. Compression	6	-1636.80	0.00	0.00
			Max. Mx	14	280.30	3.17	0.00
			Max. My	26	541.88	0.00	-0.00
			Max. Vy	14	3.66	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
T4	140.1 - 120.1	Leg	Max Tension	12	15973.54	36.53	28.57
			Max. Compression	19	-36464.83	-135.52	-70.80
			Max. Mx	18	-5985.96	-1619.63	-445.89
			Max. My	26	-6422.60	413.09	1631.03

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Vy	24	-2664.86	1619.07	-441.31
			Max. Vx	26	-2693.61	413.09	1631.03
		Diagonal	Max Tension	21	1203.93	0.00	0.00
			Max. Compression	22	-1506.92	0.00	0.00
			Max. Mx	19	-1370.09	3.91	0.00
			Max. My	15	-690.58	0.00	0.03
			Max. Vy	19	-3.70	0.00	0.00
			Max. Vx	15	-0.03	0.00	0.00
		Top Girt	Max Tension	21	2389.99	0.00	0.00
			Max. Compression	23	-2484.63	0.00	0.00
			Max. Mx	14	-4.23	3.17	0.00
			Max. My	26	-120.18	0.00	-0.00
			Max. Vy	14	3.66	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
		Bottom Girt	Max Tension	23	272.75	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	128.38	3.17	0.00
			Max. My	26	245.24	0.00	-0.00
			Max. Vy	14	3.66	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
		Guy A	Bottom Tension	20	10598.85		
			Top Tension	20	10750.80		
			Top Cable Vert	20	8940.65		
			Top Cable Norm	20	5969.92		
			Top Cable Tan	20	67.52		
			Bot Cable Vert	20	-8586.24		
			Bot Cable Norm	20	6211.89		
			Bot Cable Tan	20	157.10		
		Guy B	Bottom Tension	26	10638.88		
			Top Tension	26	10798.78		
			Top Cable Vert	26	9045.04		
			Top Cable Norm	26	5898.78		
			Top Cable Tan	26	72.52		
			Bot Cable Vert	26	-8677.88		
			Bot Cable Norm	26	6152.63		
			Bot Cable Tan	26	159.29		
		Guy C	Bottom Tension	18	10467.42		
			Top Tension	18	10627.89		
			Top Cable Vert	18	8920.57		
			Top Cable Norm	18	5776.71		
			Top Cable Tan	18	72.57		
			Bot Cable Vert	18	-8553.20		
			Bot Cable Norm	18	6031.94		
			Bot Cable Tan	18	159.68		
		Torque Arm Top	Max Tension	22	6115.92	0.00	0.00
			Max. Compression	9	-2667.70	0.00	0.00
			Max. Mx	18	208.35	-31577.12	-0.00
			Max. My	26	-962.18	-17950.01	-0.00
			Max. Vy	18	8845.14	-31577.12	-0.00
			Max. Vx	26	-0.00	-17950.01	-0.00
T5	120.1 - 100.1	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	19	-28353.30	-193.74	-66.75
			Max. Mx	19	-28353.30	-193.74	-66.75
			Max. My	15	-27826.35	-45.63	196.64
			Max. Vy	25	393.60	72.69	-13.63
			Max. Vx	21	-397.86	66.77	-154.81
		Diagonal	Max Tension	26	486.14	0.00	0.00
			Max. Compression	15	-751.60	0.00	0.00
			Max. Mx	15	-353.26	3.90	0.00
			Max. My	15	-396.59	0.00	0.03
			Max. Vy	15	-3.69	0.00	0.00
			Max. Vx	15	-0.03	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
		Top Girt	Max Tension	20	346.80	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	135.46	3.17	0.00
			Max. My	26	230.93	0.00	-0.00
			Max. Vy	14	3.66	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
		Bottom Girt	Max Tension	18	366.25	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	142.23	3.17	0.00
			Max. My	26	264.32	0.00	-0.00
			Max. Vy	14	3.66	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
T6	100.1 - 80.1	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	15	-33345.07	2.10	-42.29
			Max. Mx	24	-28576.45	171.94	-35.86
			Max. My	15	-28594.26	23.52	193.83
			Max. Vy	17	319.95	-53.97	28.01
			Max. Vx	26	-342.38	-6.62	76.13
		Diagonal	Max Tension	24	1082.68	0.00	0.00
			Max. Compression	15	-1210.82	0.00	0.00
			Max. Mx	15	107.18	3.89	0.00
			Max. My	26	-181.83	0.00	0.03
			Max. Vy	15	-3.69	0.00	0.00
			Max. Vx	26	-0.03	0.00	0.00
		Top Girt	Max Tension	15	296.10	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	154.72	3.17	0.00
			Max. My	26	262.84	0.00	-0.00
			Max. Vy	14	3.66	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
		Bottom Girt	Max Tension	23	449.27	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	227.27	3.17	0.00
			Max. My	26	397.65	0.00	-0.00
			Max. Vy	14	3.66	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
		Guy A	Bottom Tension	21	7111.85		
			Top Tension	21	7193.11		
			Top Cable Vert	21	5642.35		
			Top Cable Norm	21	4461.46		
			Top Cable Tan	21	1.30		
			Bot Cable Vert	21	-5436.36		
			Bot Cable Norm	21	4585.24		
			Bot Cable Tan	21	1.30		
		Guy B	Bottom Tension	25	7270.12		
			Top Tension	25	7350.41		
			Top Cable Vert	25	5811.46		
			Top Cable Norm	25	4500.61		
			Top Cable Tan	25	1.34		
			Bot Cable Vert	25	-5608.88		
			Bot Cable Norm	25	4625.47		
			Bot Cable Tan	25	1.34		
		Guy C	Bottom Tension	17	7211.16		
			Top Tension	17	7293.25		
			Top Cable Vert	17	5711.17		
			Top Cable Norm	17	4535.86		
			Top Cable Tan	17	0.17		
			Bot Cable Vert	17	-5503.06		
			Bot Cable Norm	17	4660.16		
			Bot Cable Tan	17	0.17		
		Top Guy Pull-Off	Max Tension	15	2738.20	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Mx	14	1286.37	12.95	0.00
			Max. My	26	2131.13	0.00	-0.00
			Max. Vy	14	14.98	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
T7	80.1 - 60.1	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	15	-31342.51	15.37	-25.78
			Max. Mx	24	-19732.59	-210.54	-52.23
			Max. My	21	-19071.05	-8.29	223.06
			Max. Vy	24	483.85	85.65	-15.94
			Max. Vx	21	-500.22	8.32	-83.37
		Diagonal	Max Tension	24	485.08	0.00	0.00
			Max. Compression	24	-767.56	0.00	0.00
			Max. Mx	15	-587.82	3.88	0.00
			Max. My	26	-494.84	0.00	0.03
			Max. Vy	15	-3.68	0.00	0.00
			Max. Vx	26	-0.03	0.00	0.00
		Top Girt	Max Tension	18	393.71	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	165.68	3.17	0.00
			Max. My	26	280.16	0.00	-0.00
			Max. Vy	14	3.66	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
		Bottom Girt	Max Tension	19	324.51	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	17	256.49	3.17	0.00
			Max. My	26	287.47	0.00	-0.00
			Max. Vy	17	3.66	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
T8	60.1 - 40.1	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	15	-34332.30	-171.07	-187.55
			Max. Mx	19	-33891.14	-347.60	9.78
			Max. My	15	-32884.75	49.18	366.57
			Max. Vy	19	-252.83	-347.60	9.78
			Max. Vx	15	-235.31	49.18	366.57
		Diagonal	Max Tension	20	1417.38	0.00	0.00
			Max. Compression	26	-1721.11	0.00	0.00
			Max. Mx	23	283.96	3.88	0.00
			Max. My	26	252.95	0.00	0.03
			Max. Vy	23	-3.68	0.00	0.00
			Max. Vx	26	-0.03	0.00	0.00
		Top Girt	Max Tension	21	242.68	0.00	0.00
			Max. Compression	15	-79.82	0.00	0.00
			Max. Mx	17	5.25	3.17	0.00
			Max. My	26	192.48	0.00	-0.00
			Max. Vy	17	3.66	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
		Bottom Girt	Max Tension	26	628.50	0.00	0.00
			Max. Compression	20	-337.38	0.00	0.00
			Max. Mx	17	53.87	3.17	0.00
			Max. My	26	628.47	0.00	-0.00
			Max. Vy	17	3.66	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
		Guy A	Bottom Tension	21	4882.29		
			Top Tension	21	4915.99		
			Top Cable Vert	21	2604.68		
			Top Cable Norm	21	4169.24		
			Top Cable Tan	21	1.03		
			Bot Cable Vert	21	-2500.12		
			Bot Cable Norm	21	4193.58		
			Bot Cable Tan	21	1.03		
		Guy B	Bottom Tension	25	4948.01		
			Top Tension	25	4980.93		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Top Cable Vert	25	2656.55		
			Top Cable Norm	25	4213.36		
			Top Cable Tan	25	0.98		
			Bot Cable Vert	25	-2554.67		
			Bot Cable Norm	25	4237.51		
			Bot Cable Tan	25	0.98		
		Guy C	Bottom Tension	17	4850.51		
			Top Tension	17	4884.91		
			Top Cable Vert	17	2600.76		
			Top Cable Norm	17	4135.02		
			Top Cable Tan	17	0.26		
			Bot Cable Vert	17	-2494.20		
			Bot Cable Norm	17	4160.10		
			Bot Cable Tan	17	0.26		
		Top Guy Pull-Off	Max Tension	26	2492.50	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	17	728.64	12.95	0.00
			Max. My	26	627.98	0.00	-0.00
			Max. Vy	17	14.98	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
T9	40.1 - 20.1	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	15	-32375.15	104.69	-72.64
			Max. Mx	19	-32125.80	-331.54	-174.38
			Max. My	15	-32371.56	49.18	366.57
			Max. Vy	23	743.29	314.51	-211.26
			Max. Vx	15	716.14	49.18	366.57
		Diagonal	Max Tension	26	1321.97	0.00	0.00
			Max. Compression	20	-1533.48	0.00	0.00
			Max. Mx	22	-216.13	3.88	0.00
			Max. My	26	-433.22	0.00	0.02
			Max. Vy	22	-3.67	0.00	0.00
			Max. Vx	26	-0.02	0.00	0.00
		Top Girt	Max Tension	20	495.19	0.00	0.00
			Max. Compression	26	-370.90	0.00	0.00
			Max. Mx	19	16.67	3.17	0.00
			Max. My	26	-370.90	0.00	-0.00
			Max. Vy	19	3.66	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
		Bottom Girt	Max Tension	26	256.94	0.00	0.00
			Max. Compression	19	-132.71	0.00	0.00
			Max. Mx	14	45.78	3.17	0.00
			Max. My	26	256.91	0.00	-0.00
			Max. Vy	14	3.66	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
T10	20.1 - 4.85	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	19	-29043.85	-511.50	546.85
			Max. Mx	19	-27275.20	684.29	134.19
			Max. My	23	-28758.49	-106.65	-708.15
			Max. Vy	19	-338.75	-127.30	100.17
			Max. Vx	22	322.03	-165.52	-698.37
		Diagonal	Max Tension	21	1089.13	0.00	0.00
			Max. Compression	19	-644.39	0.00	0.00
			Max. Mx	22	817.25	3.89	0.00
			Max. My	26	296.64	0.00	0.02
			Max. Vy	22	-3.67	0.00	0.00
			Max. Vx	26	-0.02	0.00	0.00
		Top Girt	Max Tension	20	240.53	0.00	0.00
			Max. Compression	26	-104.25	0.00	0.00
			Max. Mx	14	43.83	3.17	0.00
			Max. My	26	-104.25	0.00	-0.00
			Max. Vy	14	3.66	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
		Bottom Girt	Max Tension	15	3939.21	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	2289.95	3.17	0.00
			Max. My	26	3651.50	0.00	-0.00
			Max. Vy	14	3.66	0.00	0.00
			Max. Vx	26	0.00	0.00	0.00
T11	4.85 - 0	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	19	-30987.80	45.10	238.38
			Max. Mx	15	-29008.58	-2507.63	-144.25
			Max. My	26	-28217.69	-531.86	-711.69
			Max. Vy	15	4413.25	-2507.63	-144.25
			Max. Vx	26	1521.41	-531.86	-711.69
		Top Girt	Max Tension	15	2777.82	-1869.62	-10.69
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	26	2706.23	-1902.66	-12.20
			Max. My	26	2706.23	-1902.66	-12.20
			Max. Vy	26	337.16	-1902.66	-12.20
			Max. Vx	26	11.17	-1774.39	-12.19
		Bottom Girt	Max Tension	1	0.00	0.00	0.00
			Max. Compression	19	-873.15	-1131.12	-6.87
			Max. Mx	26	-832.25	-1352.50	-13.10
			Max. My	26	-832.25	-1352.50	-13.10
			Max. Vy	26	3865.33	-1352.50	-13.10
			Max. Vx	26	55.21	-1352.50	-13.10
		Mid Girt	Max Tension	19	64.54	0.00	0.00
			Max. Compression	19	-154.89	0.00	0.00
			Max. Mx	21	54.94	8.34	0.00
			Max. My	25	37.55	0.00	1.72
			Max. Vy	21	15.52	0.00	0.00
			Max. Vx	25	3.20	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Mast	Max. Vert	19	84524.91	-276.92	-159.14
	Max. H_x	12	51827.05	642.64	378.45
	Max. H_z	2	65711.52	-7.91	468.34
	Max. M_x	1	0.00	-6.09	-2.92
	Max. M_z	1	0.00	-6.09	-2.92
	Max. Torsion	26	940.17	343.26	294.10
	Min. Vert	1	39747.68	-6.09	-2.92
	Min. H_x	4	51586.01	-657.02	387.35
	Min. H_z	8	51808.68	0.79	-780.71
	Min. M_x	1	0.00	-6.09	-2.92
	Min. M_z	1	0.00	-6.09	-2.92
	Min. Torsion	20	-1066.67	-101.68	-496.52
Guy C @ 99 ft Elev -5.17 ft Azimuth 240 deg	Max. Vert	35	-1175.00	-546.53	315.52
	Max. H_x	10	-1221.68	-421.96	243.83
	Max. H_z	16	-27273.24	-14860.29	9183.54
	Min. Vert	18	-27537.84	-15522.74	8355.88
	Min. H_x	18	-27537.84	-15522.74	8355.88
	Min. H_z	10	-1221.68	-421.96	243.83
Guy B @ 99.25 ft Elev -4.67 ft	Max. Vert	31	-1126.79	524.95	304.03

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Azimuth 120 deg					
	Max. H_x	24	-27507.27	15589.69	8395.63
	Max. H_z	26	-27337.34	14978.87	9237.14
	Min. Vert	24	-27507.27	15589.69	8395.63
	Min. H_x	6	-1196.90	413.68	239.26
	Min. H_z	6	-1196.90	413.68	239.26
Guy A @ 96.5 ft Elev 2.46 ft Azimuth 0 deg	Max. Vert	27	-1007.47	-0.91	-543.46
	Max. H_x	24	-15163.05	926.04	-9600.88
	Max. H_z	2	-1106.21	-0.20	-441.01
	Min. Vert	21	-27137.09	7.92	-17794.95
	Min. H_x	18	-15251.41	-927.89	-9649.74
	Min. H_z	21	-27137.09	7.92	-17794.95
Guy C @ 71.5 ft Elev 2.125 ft Azimuth 240 deg	Max. Vert	10	-144.85	-84.48	48.78
	Max. H_x	10	-144.85	-84.48	48.78
	Max. H_z	17	-7997.26	-7638.36	4410.50
	Min. Vert	17	-7997.26	-7638.36	4410.50
	Min. H_x	17	-7997.26	-7638.36	4410.50
	Min. H_z	10	-144.85	-84.48	48.78
Guy B @ 68.25 ft Elev 3.96 ft Azimuth 120 deg	Max. Vert	6	-147.71	82.89	47.89
	Max. H_x	25	-8163.55	7676.73	4429.49
	Max. H_z	25	-8163.55	7676.73	4429.49
	Min. Vert	25	-8163.55	7676.73	4429.49
	Min. H_x	6	-147.71	82.89	47.89
	Min. H_z	6	-147.71	82.89	47.89
Guy A @ 70.5 ft Elev 3 ft Azimuth 0 deg	Max. Vert	2	-142.44	-0.03	-95.59
	Max. H_x	24	-4201.34	238.75	-4614.19
	Max. H_z	2	-142.44	-0.03	-95.59
	Min. Vert	21	-7936.48	2.33	-8778.83
	Min. H_x	18	-4160.06	-238.55	-4564.58
	Min. H_z	21	-7936.48	2.33	-8778.83

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	39747.68	6.09	2.92	0.00	0.00	34.32
Dead+Wind 0 deg - No Ice+Guy	65711.52	7.91	-468.34	0.00	0.00	-703.68
Dead+Wind 30 deg - No Ice+Guy	60574.51	413.52	-422.72	0.00	0.00	-386.49
Dead+Wind 60 deg - No Ice+Guy	51586.01	657.02	-387.35	0.00	0.00	23.38
Dead+Wind 90 deg - No Ice+Guy	60861.47	576.20	-131.15	0.00	0.00	440.69
Dead+Wind 120 deg - No Ice+Guy	65764.30	425.33	261.05	0.00	0.00	779.64
Dead+Wind 150 deg - No Ice+Guy	60685.22	179.11	593.08	0.00	0.00	930.25
Dead+Wind 180 deg - No	51808.68	-0.79	780.71	0.00	0.00	842.63

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
Ice+Guy						
Dead+Wind 210 deg - No Ice+Guy	60437.12	-173.96	592.76	0.00	0.00	490.17
Dead+Wind 240 deg - No Ice+Guy	65510.14	-413.22	261.77	0.00	0.00	90.60
Dead+Wind 270 deg - No Ice+Guy	60782.94	-560.76	-127.52	0.00	0.00	-328.78
Dead+Wind 300 deg - No Ice+Guy	51827.05	-642.64	-378.45	0.00	0.00	-750.57
Dead+Wind 330 deg - No Ice+Guy	60745.84	-398.43	-416.69	0.00	0.00	-841.35
Dead+Ice+Temp+Guy	52083.34	26.24	-4.06	0.00	0.00	46.00
Dead+Wind 0 deg+Ice+Temp+Guy	84409.75	30.07	-281.60	0.00	0.00	-732.25
Dead+Wind 30 deg+Ice+Temp+Guy	80156.44	402.86	-301.63	0.00	0.00	-336.13
Dead+Wind 60 deg+Ice+Temp+Guy	73512.17	590.44	-347.47	0.00	0.00	129.75
Dead+Wind 90 deg+Ice+Temp+Guy	80482.38	466.32	-175.72	0.00	0.00	566.36
Dead+Wind 120 deg+Ice+Temp+Guy	84524.91	276.92	159.14	0.00	0.00	922.52
Dead+Wind 150 deg+Ice+Temp+Guy	80356.33	101.68	496.52	0.00	0.00	1066.67
Dead+Wind 180 deg+Ice+Temp+Guy	73838.94	21.07	679.36	0.00	0.00	900.05
Dead+Wind 210 deg+Ice+Temp+Guy	80334.61	-52.82	494.75	0.00	0.00	471.10
Dead+Wind 240 deg+Ice+Temp+Guy	84486.60	-218.77	158.64	0.00	0.00	30.60
Dead+Wind 270 deg+Ice+Temp+Guy	80612.60	-404.27	-171.72	0.00	0.00	-413.63
Dead+Wind 300 deg+Ice+Temp+Guy	73817.50	-530.13	-337.71	0.00	0.00	-850.62
Dead+Wind 330 deg+Ice+Temp+Guy	80308.63	-343.26	-294.10	0.00	0.00	-940.17
Dead+Wind 0 deg - Service+Guy	42193.18	6.80	-455.70	0.00	0.00	-348.44
Dead+Wind 30 deg - Service+Guy	42053.42	218.16	-370.86	0.00	0.00	-162.48
Dead+Wind 60 deg - Service+Guy	41771.61	365.56	-209.04	0.00	0.00	24.71
Dead+Wind 90 deg - Service+Guy	42267.25	429.55	2.86	0.00	0.00	212.88
Dead+Wind 120 deg - Service+Guy	42425.39	397.33	232.90	0.00	0.00	400.59
Dead+Wind 150 deg - Service+Guy	42411.14	217.40	376.41	0.00	0.00	484.11
Dead+Wind 180 deg - Service+Guy	42115.91	4.30	425.10	0.00	0.00	405.73
Dead+Wind 210 deg - Service+Guy	42386.80	-208.37	376.72	0.00	0.00	236.30
Dead+Wind 240 deg - Service+Guy	42423.03	-387.04	234.32	0.00	0.00	51.42
Dead+Wind 270 deg - Service+Guy	42334.98	-416.83	5.14	0.00	0.00	-138.57
Dead+Wind 300 deg - Service+Guy	41892.74	-351.54	-206.56	0.00	0.00	-323.28
Dead+Wind 330 deg - Service+Guy	42152.14	-204.22	-369.16	0.00	0.00	-420.29

Solution Summary

Load Comb.	Sum of Applied Forces PX lb	PY lb	PZ lb	Sum of Reactions PX lb	PY lb	PZ lb	% Error
1	0.00	-12070.67	0.00	0.39	12070.65	-1.94	0.016%
2	-49.24	-12132.92	-19414.63	49.24	12132.86	19413.42	0.005%
3	9660.98	-12077.02	-16734.08	-9660.99	12076.98	16733.24	0.004%
4	16764.01	-12019.46	-9622.06	-16763.64	12019.45	9622.59	0.003%
5	19408.16	-12072.09	48.93	-19407.08	12072.03	-48.32	0.005%
6	16886.96	-12124.27	9749.90	-16886.13	12124.22	-9749.45	0.004%
7	9746.42	-12065.72	16784.22	-9745.37	12065.67	-16783.66	0.005%
8	49.24	-12008.39	19329.96	-48.57	12008.39	-19329.90	0.003%
9	-9660.98	-12064.29	16734.08	9659.99	12064.24	-16733.56	0.005%
10	-16837.33	-12121.86	9664.39	16836.56	12121.81	-9663.97	0.004%
11	-19408.16	-12069.22	-48.93	19407.14	12069.17	49.51	0.005%
12	-16813.63	-12017.05	-9707.57	16812.67	12017.01	9707.50	0.004%
13	-9746.42	-12075.59	-16784.22	9746.44	12075.55	16783.37	0.004%
14	0.00	-21781.58	0.00	-0.91	21781.55	-1.31	0.007%
15	-40.39	-21928.82	-23052.47	40.39	21928.74	23050.85	0.005%
16	11504.56	-21796.14	-19928.51	-11504.66	21796.08	19927.17	0.004%
17	19962.50	-21659.63	-11479.40	-19961.83	21659.62	11480.06	0.003%
18	23081.41	-21785.35	39.53	-23080.54	21785.30	-38.98	0.003%
19	20023.35	-21909.86	11561.16	-20022.25	21909.79	-11560.57	0.004%
20	11574.96	-21770.78	19971.38	-11574.03	21770.74	-19970.96	0.003%
21	40.39	-21634.32	23030.09	-39.64	21634.28	-23029.07	0.004%
22	-11504.56	-21767.00	19928.51	11503.68	21766.96	-19928.11	0.003%
23	-19981.88	-21903.51	11490.59	19980.84	21903.45	-11490.02	0.004%
24	-23081.41	-21777.79	-39.53	23080.58	21777.75	40.06	0.003%
25	-20003.97	-21653.28	-11549.97	20003.00	21653.26	11550.42	0.003%
26	-11574.96	-21792.36	-19971.38	11575.06	21792.30	19970.02	0.004%
27	-24.53	-12101.69	-9673.72	24.54	12101.67	9673.07	0.004%
28	4813.77	-12073.84	-8338.09	-4813.81	12073.82	8337.53	0.004%
29	8353.00	-12045.15	-4794.38	-8352.08	12045.14	4794.12	0.006%
30	9670.50	-12071.38	24.38	-9670.03	12071.36	-24.10	0.004%
31	8414.26	-12097.38	4858.08	-8413.82	12097.36	-4857.85	0.003%
32	4856.35	-12068.21	8363.07	-4855.92	12068.19	-8362.88	0.003%
33	24.53	-12039.64	9631.54	-24.38	12039.63	-9630.90	0.004%
34	-4813.78	-12067.49	8338.09	4813.41	12067.48	-8337.92	0.003%
35	-8389.54	-12096.18	4815.48	8389.15	12096.16	-4815.27	0.003%
36	-9670.50	-12069.95	-24.38	9670.08	12069.94	24.63	0.003%
37	-8377.73	-12043.95	-4836.99	8376.92	12043.94	4836.59	0.006%
38	-4856.35	-12073.12	-8363.07	4856.39	12073.11	8362.49	0.004%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	9	0.00000001	0.00009197
2	Yes	22	0.00006573	0.00007677
3	Yes	22	0.00000001	0.00005527
4	Yes	17	0.00000001	0.00003852
5	Yes	21	0.00007548	0.00008212
6	Yes	22	0.00000001	0.00006157
7	Yes	21	0.00007520	0.00007890
8	Yes	16	0.00000001	0.00003961
9	Yes	21	0.00007090	0.00007379
10	Yes	22	0.00000001	0.00005764

11	Yes	21	0.00007210	0.00007793
12	Yes	14	0.00000001	0.00007101
13	Yes	22	0.00000001	0.00005609
14	Yes	6	0.00000001	0.00005115
15	Yes	22	0.00008665	0.00009040
16	Yes	22	0.00008147	0.00007331
17	Yes	16	0.00008199	0.00004801
18	Yes	22	0.00006114	0.00005777
19	Yes	22	0.00006729	0.00007168
20	Yes	22	0.00006351	0.00005734
21	Yes	14	0.00009191	0.00007392
22	Yes	22	0.00006013	0.00005404
23	Yes	22	0.00006401	0.00006787
24	Yes	22	0.00005915	0.00005557
25	Yes	15	0.00008119	0.00005391
26	Yes	22	0.00008341	0.00007494
27	Yes	17	0.00000001	0.00007052
28	Yes	16	0.00000001	0.00006211
29	Yes	12	0.00000001	0.00008717
30	Yes	16	0.00000001	0.00006091
31	Yes	17	0.00000001	0.00005643
32	Yes	16	0.00000001	0.00005264
33	Yes	12	0.00000001	0.00006273
34	Yes	16	0.00000001	0.00004568
35	Yes	17	0.00000001	0.00004900
36	Yes	16	0.00000001	0.00005485
37	Yes	12	0.00000001	0.00008159
38	Yes	16	0.00000001	0.00006430

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	190.6 - 175.35	7.352	31	0.3935	0.1513
T2	175.35 - 160.1	6.064	31	0.4150	0.1494
T3	160.1 - 140.1	4.688	31	0.4155	0.1449
T4	140.1 - 120.1	3.120	30	0.2941	0.1420
T5	120.1 - 100.1	2.245	36	0.1842	0.1786
T6	100.1 - 80.1	1.627	37	0.1347	0.2076
T7	80.1 - 60.1	1.195	37	0.0812	0.2238
T8	60.1 - 40.1	0.883	29	0.0745	0.2278
T9	40.1 - 20.1	0.588	29	0.0632	0.2089
T10	20.1 - 4.85	0.334	33	0.0708	0.1706
T11	4.85 - 0	0.084	33	0.0809	0.1049

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
189.99	Guy	31	7.301	0.3943	0.1512	52343
187.00	BXA-70063-6CF W/ Mast Pipe	31	7.053	0.3985	0.1509	52343
145.00	Commscope LNX-6515DS-VTM w/ pipe mast	30	3.430	0.3296	0.1395	6640
139.49	Guy	30	3.085	0.2898	0.1426	5706
120.00	US Army Mars	36	2.242	0.1838	0.1788	26722

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
87.37	Guy	37	1.334	0.0976	0.2190	23616
85.00	US Army Mars	37	1.286	0.0914	0.2207	24826
44.95	Guy	29	0.655	0.0654	0.2147	62132

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	190.6 - 175.35	27.028	15	1.2147	0.3048
T2	175.35 - 160.1	23.119	15	1.2564	0.3079
T3	160.1 - 140.1	19.046	15	1.2520	0.3092
T4	140.1 - 120.1	14.175	15	0.9803	0.3111
T5	120.1 - 100.1	10.675	15	0.7522	0.3938
T6	100.1 - 80.1	7.799	15	0.6237	0.4588
T7	80.1 - 60.1	5.545	15	0.4504	0.4968
T8	60.1 - 40.1	3.825	15	0.3818	0.5085
T9	40.1 - 20.1	2.368	15	0.3029	0.4692
T10	20.1 - 4.85	1.227	15	0.2843	0.3820
T11	4.85 - 0	0.303	15	0.2956	0.2373

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
189.99	Guy	15	26.873	1.2163	0.3049	26192
187.00	BXA-70063-6CF W/ Mast Pipe	15	26.117	1.2244	0.3054	26192
145.00	Commscope LNX-6515DS-VTM w/ pipe mast	15	15.252	1.0574	0.3043	3071
139.49	Guy	15	14.048	0.9713	0.3125	2664
120.00	US Army Mars	15	10.660	0.7514	0.3942	8725
87.37	Guy	15	6.290	0.5078	0.4852	6530
85.00	US Army Mars	15	6.038	0.4870	0.4893	6703
44.95	Guy	15	2.689	0.3199	0.4817	11570

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	190.6	Leg	A325N	0.7500	4	0.00	19438.60	0.000 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.5000	1	2348.17	2740.50	0.857 ✔	1.333	Member Bearing
		Bottom Girt	A325N	0.5000	1	322.20	2740.50	0.118 ✔	1.333	Member Bearing
T2	175.35	Leg	A325N	0.7500	4	0.00	19438.60	0.000 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.5000	1	1896.86	2740.50	0.692 ✔	1.333	Member Bearing

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load / Allowable	Allowable Ratio	Criteria
		Top Girt	A325N	0.5000	1	342.39	2740.50	0.125 ✔	1.333	Member Bearing
		Bottom Girt	A325N	0.5000	1	757.34	2740.50	0.276 ✔	1.333	Member Bearing
T3	160.1	Leg	A325N	0.7500	4	3541.40	19438.60	0.182 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.5000	1	1996.06	2740.50	0.728 ✔	1.333	Member Bearing
		Top Girt	A325N	0.5000	1	305.48	2740.50	0.111 ✔	1.333	Member Bearing
		Bottom Girt	A325N	0.5000	1	2465.94	2740.50	0.900 ✔	1.333	Member Bearing
T4	140.1	Leg	A325N	0.7500	4	0.00	19438.50	0.000 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.5000	1	1203.93	2740.50	0.439 ✔	1.333	Member Bearing
		Top Girt	A325N	0.5000	1	2389.99	2740.50	0.872 ✔	1.333	Member Bearing
		Bottom Girt	A325N	0.5000	1	272.75	2740.50	0.100 ✔	1.333	Member Bearing
T5	120.1	Leg	A325N	0.7500	4	0.00	19438.60	0.000 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.5000	1	751.60	4123.34	0.182 ✔	1.333	Bolt Shear
		Top Girt	A325N	0.5000	1	346.80	2740.50	0.127 ✔	1.333	Member Bearing
		Bottom Girt	A325N	0.5000	1	366.25	2740.50	0.134 ✔	1.333	Member Bearing
T6	100.1	Leg	A325N	0.7500	4	0.00	19438.60	0.000 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.5000	1	1082.68	2740.50	0.395 ✔	1.333	Member Bearing
		Top Girt	A325N	0.5000	1	296.10	2740.50	0.108 ✔	1.333	Member Bearing
		Bottom Girt	A325N	0.5000	1	449.27	2740.50	0.164 ✔	1.333	Member Bearing
T7	80.1	Leg	A325N	0.7500	4	0.00	19438.50	0.000 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.5000	1	767.56	4123.34	0.186 ✔	1.333	Bolt Shear
		Top Girt	A325N	0.5000	1	393.71	2740.50	0.144 ✔	1.333	Member Bearing
		Bottom Girt	A325N	0.5000	1	324.51	2740.50	0.118 ✔	1.333	Member Bearing
T8	60.1	Leg	A325N	0.7500	4	0.00	19438.40	0.000 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.5000	1	1417.38	2740.50	0.517 ✔	1.333	Member Bearing
		Top Girt	A325N	0.5000	1	242.68	2740.50	0.089 ✔	1.333	Member Bearing
		Bottom Girt	A325N	0.5000	1	628.51	2740.50	0.229 ✔	1.333	Member Bearing
T9	40.1	Leg	A325N	0.7500	4	0.00	19438.50	0.000 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.5000	1	1321.97	2740.50	0.482 ✔	1.333	Member Bearing
		Top Girt	A325N	0.5000	1	495.19	2740.50	0.181 ✔	1.333	Member Bearing
		Bottom Girt	A325N	0.5000	1	256.94	2740.50	0.094 ✔	1.333	Member Bearing
T10	20.1	Leg	A325N	0.7500	4	0.00	19438.10	0.000 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.5000	1	1089.13	2740.50	0.397 ✔	1.333	Member Bearing
		Top Girt	A325N	0.5000	1	240.53	2740.50	0.088 ✔	1.333	Member Bearing
		Bottom Girt	A325N	0.5000	1	3939.21	4123.34	0.955 ✔	1.333	Bolt Shear

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension lb	Breaking Load lb	Actual T lb	Allowable T_a lb	Required S.F.	Actual S.F.
T1	189.99 (A) (450)	1/2 EHS	2690.00	26900.04	12266.50	13450.00	2.000	2.193 ✔
	189.99 (B) (449)	1/2 EHS	2690.00	26900.04	12399.20	13450.00	2.000	2.169 ✔
	189.99 (C) (448)	1/2 EHS	2690.00	26900.04	12356.70	13450.00	2.000	2.177 ✔
T4	139.49 (A) (459)	1/2 EHS	2690.00	26900.04	10488.70	13450.00	2.000	2.565 ✔
	139.49 (A) (460)	1/2 EHS	2690.00	26900.04	10750.80	13450.00	2.000	2.502 ✔
	139.49 (B) (455)	1/2 EHS	2690.00	26900.04	10798.80	13450.00	2.000	2.491 ✔
	139.49 (B) (456)	1/2 EHS	2690.00	26900.04	10618.00	13450.00	2.000	2.533 ✔
	139.49 (C) (451)	1/2 EHS	2690.00	26900.04	10627.90	13450.00	2.000	2.531 ✔
	139.49 (C) (452)	1/2 EHS	2690.00	26900.04	10511.40	13450.00	2.000	2.559 ✔
T6	87.37 (A) (468)	7/16 EHS	2080.00	20800.02	7193.11	10400.00	2.000	2.892 ✔
	87.37 (B) (467)	7/16 EHS	2080.00	20800.02	7350.41	10400.00	2.000	2.830 ✔
	87.37 (C) (463)	7/16 EHS	2080.00	20800.02	7293.25	10400.00	2.000	2.852 ✔
T8	44.95 (A) (474)	3/8 EHS	1540.00	15399.96	4915.99	7700.00	2.000	3.133 ✔
	44.95 (B) (473)	3/8 EHS	1540.00	15399.96	4980.93	7700.00	2.000	3.092 ✔
	44.95 (C) (469)	3/8 EHS	1540.00	15399.96	4884.91	7700.00	2.000	3.153 ✔

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	Mast Stability Index	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	190.6 - 175.35	ROHN 2.5 X-STR	15.25	2.44	63.4 K=2.00	1.00	22.137	2.2535	-14927.60	49886.40	0.299 ✔
T2	175.35 - 160.1	ROHN 2.5 X-STR	15.25	2.44	63.4 K=2.00	1.00	22.137	2.2535	-13270.70	49886.40	0.266 ✔
T3	160.1 - 140.1	ROHN 2 STD	20.00	2.42	36.9 K=1.00	1.00	26.254	1.0745	-34169.80	28210.30	1.211 ✔
T4	140.1 - 120.1	ROHN 2 STD	20.00	2.42	36.9 K=1.00	1.00	26.220	1.0745	-36462.60	28173.80	1.294 ✔
T5	120.1 - 100.1	ROHN 2 STD	20.00	2.42	36.9 K=1.00	1.00	26.207	1.0745	-28353.30	28160.20	1.007 ✔
T6	100.1 - 80.1	ROHN 2 STD	20.00	2.42	36.9 K=1.00	1.00	26.203	1.0745	-33345.10	28155.50	1.184 ✔
T7	80.1 - 60.1	ROHN 2 X-STR	20.00	2.42	37.9 K=1.00	1.00	26.118	1.4773	-31342.50	38583.30	0.812 ✔
T8	60.1 - 40.1	ROHN 2.5 STD	20.00	2.42	61.4 K=2.00	1.00	22.480	1.7040	-34332.30	38306.80	0.896 ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	Mast Stability Index	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T9	40.1 - 20.1	ROHN 2.5 STD	20.00	2.42	61.4 K=2.00	1.00	22.480	1.7040	-32375.20	38306.80	0.845 ✔
T10	20.1 - 4.85	ROHN 2.5 STD	15.25	2.44	61.8 K=2.00	1.00	22.410	1.7040	-29043.90	38186.90	0.761 ✔
T11	4.85 - 0	ROHN 2.5 X-STR	5.25	1.27	16.5 K=1.00	0.96	27.519	2.2535	-30985.10	62016.00	0.500 ✔

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	190.6 - 175.35	P1.5x.058	4.23	3.94	92.7 K=1.00	15.127	0.2627	-2360.27	3974.60	0.594 ✔
T2	175.35 - 160.1	P1.5x.058	4.23	3.94	92.7 K=1.00	15.127	0.2627	-1934.84	3974.60	0.487 ✔
T3	160.1 - 140.1	P1.5x.058	4.22	3.98	93.7 K=1.00	14.968	0.2627	-2121.40	3932.77	0.539 ✔
T4	140.1 - 120.1	P1.5x.058	4.22	3.98	93.7 K=1.00	14.968	0.2627	-1506.92	3932.77	0.383 ✔
T5	120.1 - 100.1	P1.5x.058	4.22	3.98	93.7 K=1.00	14.968	0.2627	-751.60	3932.77	0.191 ✔
T6	100.1 - 80.1	P1.5x.058	4.22	3.98	93.7 K=1.00	14.968	0.2627	-1210.82	3932.77	0.308 ✔
T7	80.1 - 60.1	P1.5x.058	4.22	3.98	93.7 K=1.00	14.968	0.2627	-767.56	3932.77	0.195 ✔
T8	60.1 - 40.1	P1.5x.058	4.22	3.93	92.5 K=1.00	15.159	0.2627	-1721.11	3983.07	0.432 ✔
T9	40.1 - 20.1	P1.5x.058	4.22	3.93	92.5 K=1.00	15.159	0.2627	-1533.48	3983.07	0.385 ✔
T10	20.1 - 4.85	P1.5x.058	4.23	3.94	92.7 K=1.00	15.127	0.2627	-644.39	3974.60	0.162 ✔

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T2	175.35 - 160.1	P1.5x.058	3.46	3.22	75.7 K=1.00	17.678	0.2627	-349.77	4644.99	0.075 ✔
T3	160.1 - 140.1	P1.5x.058	3.46	3.26	76.7 K=1.00	17.539	0.2627	-141.42	4608.31	0.031 ✔
T4	140.1 - 120.1	P1.5x.058	3.46	3.26	76.7 K=1.00	17.539	0.2627	-2484.63	4608.31	0.539 ✔
T8	60.1 - 40.1	P1.5x.058	3.46	3.22	75.7 K=1.00	17.678	0.2627	-79.82	4644.99	0.017 ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T9	40.1 - 20.1	P1.5x.058	3.46	3.22	75.7 K=1.00	17.678	0.2627	-370.90	4644.99	0.080 ✔
T10	20.1 - 4.85	P1.5x.058	3.46	3.22	75.7 K=1.00	17.678	0.2627	-104.25	4644.99	0.022 ✔

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	190.6 - 175.35	P1.5x.058	3.46	3.22	75.7 K=1.00	17.678	0.2627	-275.32	4644.99	0.059 ✔
T2	175.35 - 160.1	P1.5x.058	3.46	3.22	75.7 K=1.00	17.678	0.2627	-676.24	4644.99	0.146 ✔
T3	160.1 - 140.1	P1.5x.058	3.46	3.26	76.7 K=1.00	17.539	0.2627	-1636.80	4608.31	0.355 ✔
T8	60.1 - 40.1	P1.5x.058	3.46	3.22	75.7 K=1.00	17.678	0.2627	-337.38	4644.99	0.073 ✔
T9	40.1 - 20.1	P1.5x.058	3.46	3.22	75.7 K=1.00	17.678	0.2627	-132.71	4644.99	0.029 ✔
T11	4.85 - 0	14x3/16	0.48	0.24	52.3 K=1.00	18.144	2.6250	-873.15	47626.90	0.018 ✔

Mid Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T11	4.85 - 0	14x3/16	1.31	1.07	237.7 K=1.00	2.642	2.6250	-154.89	6936.17	0.022 ✔
		KL/R > 200 (C) - 443								

Top Guy Pull-Off Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	190.6 - 175.35	4 1/2x3/8	3.46	3.22	357.0 K=1.00	21.600	1.6875	0.00	1977.38	0.000*
T6	100.1 - 80.1	C4x5.4	3.46	3.26	87.2 K=1.00	21.600	1.5900	0.00	23113.10	0.000*
T8	60.1 - 40.1	C4x5.4	3.46	3.22	86.1 K=1.00	21.600	1.5900	0.00	23319.00	0.000*

* DL controls

Top Guy Pull-Off Bending Design Data

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T1	190.6 - 175.35	4 1/2x3/8	11.89	-0.113	27.000	0.004	0.00	0.000	27.000	0.000
T6	100.1 - 80.1	C4x5.4	12.95	-0.081	21.600	0.004	0.00	0.000	21.600	0.000
T8	60.1 - 40.1	C4x5.4	12.95	-0.081	21.600	0.004	0.00	0.000	21.600	0.000

Top Guy Pull-Off Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	190.6 - 175.35	4 1/2x3/8	0.000	0.004	0.000	0.004* ✔	1.000	H1-3 ✔
T6	100.1 - 80.1	C4x5.4	0.000	0.004	0.000	0.004* ✔	1.000	H1-3 ✔
T8	60.1 - 40.1	C4x5.4	0.000	0.004	0.000	0.004* ✔	1.000	H1-3 ✔

* DL controls

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T4	140.1 - 120.1 (453)	C10x15.3	3.59	3.49	58.7 K=1.00	21.600	4.4900	0.00	57151.60	0.000
T4	140.1 - 120.1 (454)	C10x15.3	3.59	3.49	102.0 K=1.00	12.729	4.4900	-2650.51	57151.60	0.046
T4	140.1 - 120.1 (457)	C10x15.3	3.59	3.49	102.0 K=1.00	12.729	4.4900	-2605.30	57151.60	0.046
T4	140.1 - 120.1 (458)	C10x15.3	3.59	3.49	102.0 K=1.00	12.729	4.4900	-2633.07	57151.60	0.046
T4	140.1 - 120.1 (461)	C10x15.3	3.59	3.49	58.7 K=1.00	21.600	4.4900	0.00	57151.60	0.000
T4	140.1 - 120.1 (462)	C10x15.3	3.59	3.49	58.7 K=1.00	21.600	4.4900	0.00	57151.60	0.000

Torque-Arm Top Bending Design Data

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T4	140.1 - 120.1 (453)	C10x15.3	-31577.08	-28.069	21.600	1.299	-0.00	-0.000	21.600	0.000
T4	140.1 - 120.1 (454)	C10x15.3	-29913.83	-26.590	21.600	1.231	0.00	-0.000	21.600	0.000

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T4	140.1 - 120.1 (457)	C10x15.3	-30576.17	-27.179	21.600	1.258	0.00	-0.000	21.600	0.000
T4	140.1 - 120.1 (458)	C10x15.3	-30563.58	-27.168	21.600	1.258	-0.00	-0.000	21.600	0.000
T4	140.1 - 120.1 (461)	C10x15.3	-31544.83	-28.040	21.600	1.298	0.00	-0.000	21.600	0.000
T4	140.1 - 120.1 (462)	C10x15.3	-30896.33	-27.463	21.600	1.271	-0.00	-0.000	21.600	0.000

Torque-Arm Top Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T4	140.1 - 120.1 (453)	C10x15.3	0.000	1.299	0.000	1.299 ✔	1.333	H1-3 ✔
T4	140.1 - 120.1 (454)	C10x15.3	0.046	1.231	0.000	1.277 ✔	1.333	H1-3 ✔
T4	140.1 - 120.1 (457)	C10x15.3	0.046	1.258	0.000	1.304 ✔	1.333	H1-3 ✔
T4	140.1 - 120.1 (458)	C10x15.3	0.046	1.258	0.000	1.304 ✔	1.333	H1-3 ✔
T4	140.1 - 120.1 (461)	C10x15.3	0.000	1.298	0.000	1.298 ✔	1.333	H1-3 ✔
T4	140.1 - 120.1 (462)	C10x15.3	0.000	1.271	0.000	1.271 ✔	1.333	H1-3 ✔

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	190.6 - 175.35	ROHN 2.5 X-STR	15.25	2.44	31.7	30.000	2.2535	2107.15	67606.20	0.031 ✔
T3	160.1 - 140.1	ROHN 2 STD	20.00	2.42	36.9	30.000	1.0745	14165.60	32235.90	0.439 ✔
T4	140.1 - 120.1	ROHN 2 STD	20.00	2.42	36.9	30.000	1.0745	15973.50	32235.90	0.496 ✔

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	190.6 - 175.35	P1.5x.058	4.23	3.94	92.7	25.200	0.2627	2348.17	6621.31	0.355 ✔
T2	175.35 - 160.1	P1.5x.058	4.23	3.94	92.7	25.200	0.2627	1896.86	6621.31	0.286 ✔
T3	160.1 - 140.1	P1.5x.058	4.22	3.98	93.7	25.200	0.2627	1996.06	6621.31	0.301 ✔
T4	140.1 - 120.1	P1.5x.058	4.22	3.98	93.7	25.200	0.2627	1203.93	6621.31	0.182 ✔
T5	120.1 - 100.1	P1.5x.058	4.22	3.98	93.7	25.200	0.2627	486.14	6621.31	0.073 ✔
T6	100.1 - 80.1	P1.5x.058	4.22	3.98	93.7	25.200	0.2627	1082.68	6621.31	0.164 ✔
T7	80.1 - 60.1	P1.5x.058	4.22	3.98	93.7	25.200	0.2627	485.08	6621.31	0.073 ✔
T8	60.1 - 40.1	P1.5x.058	4.22	3.93	92.5	25.200	0.2627	1417.38	6621.31	0.214 ✔
T9	40.1 - 20.1	P1.5x.058	4.22	3.93	92.5	25.200	0.2627	1321.97	6621.31	0.200 ✔
T10	20.1 - 4.85	P1.5x.058	4.23	3.94	92.7	25.200	0.2627	1089.13	6621.31	0.164 ✔

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T2	175.35 - 160.1	P1.5x.058	3.46	3.22	75.7	25.200	0.2627	342.39	6621.31	0.052 ✔
T3	160.1 - 140.1	P1.5x.058	3.46	3.26	76.7	25.200	0.2627	305.48	6621.31	0.046 ✔
T4	140.1 - 120.1	P1.5x.058	3.46	3.26	76.7	25.200	0.2627	2389.99	6621.31	0.361 ✔
T5	120.1 - 100.1	P1.5x.058	3.46	3.26	76.7	25.200	0.2627	346.80	6621.31	0.052 ✔
T6	100.1 - 80.1	P1.5x.058	3.46	3.26	76.7	25.200	0.2627	296.10	6621.31	0.045 ✔
T7	80.1 - 60.1	P1.5x.058	3.46	3.26	76.7	25.200	0.2627	393.71	6621.31	0.059 ✔
T8	60.1 - 40.1	P1.5x.058	3.46	3.22	75.7	25.200	0.2627	242.68	6621.31	0.037 ✔
T9	40.1 - 20.1	P1.5x.058	3.46	3.22	75.7	25.200	0.2627	495.19	6621.31	0.075 ✔
T10	20.1 - 4.85	P1.5x.058	3.46	3.22	75.7	25.200	0.2627	240.53	6621.31	0.036 ✔
T11	4.85 - 0	14x3/16	2.98	2.74	608.5	21.600	2.6250	2777.82	56700.00	0.049 ✔
		L/R > 500 (T) - 436								

Bottom Girt Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio $\frac{P}{P_a}$
	ft		ft	ft		ksi	in^2	lb	lb	
T1	190.6 - 175.35	P1.5x.058	3.46	3.22	75.7	25.200	0.2627	322.20	6621.31	0.049 ✔
T2	175.35 - 160.1	P1.5x.058	3.46	3.22	75.7	25.200	0.2627	757.34	6621.31	0.114 ✔
T3	160.1 - 140.1	P1.5x.058	3.46	3.26	76.7	25.200	0.2627	2465.94	6621.31	0.372 ✔
T4	140.1 - 120.1	P1.5x.058	3.46	3.26	76.7	25.200	0.2627	272.75	6621.31	0.041 ✔
T5	120.1 - 100.1	P1.5x.058	3.46	3.26	76.7	25.200	0.2627	366.25	6621.31	0.055 ✔
T6	100.1 - 80.1	P1.5x.058	3.46	3.26	76.7	25.200	0.2627	449.27	6621.31	0.068 ✔
T7	80.1 - 60.1	P1.5x.058	3.46	3.26	76.7	25.200	0.2627	324.51	6621.31	0.049 ✔
T8	60.1 - 40.1	P1.5x.058	3.46	3.22	75.7	25.200	0.2627	628.51	6621.31	0.095 ✔
T9	40.1 - 20.1	P1.5x.058	3.46	3.22	75.7	25.200	0.2627	256.94	6621.31	0.039 ✔
T10	20.1 - 4.85	P1.5x.058	3.46	3.22	75.7	25.200	0.2627	3939.21	6621.31	0.595 ✔

Mid Girt Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio $\frac{P}{P_a}$
	ft		ft	ft		ksi	in^2	lb	lb	
T11	4.85 - 0	14x3/16	2.15	1.91	423.1	21.600	2.6250	64.54	56700.00	0.001 ✔

Top Guy Pull-Off Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio $\frac{P}{P_a}$
	ft		ft	ft		ksi	in^2	lb	lb	
T1	190.6 - 175.35	4 1/2x3/8	3.46	3.22	357.0	21.600	1.6875	3362.80	36450.00	0.092
T6	100.1 - 80.1	C4x5.4	3.46	3.26	87.2	21.600	1.5900	2738.20	34344.00	0.080
T8	60.1 - 40.1	C4x5.4	3.46	3.22	86.1	21.600	1.5900	2492.47	34344.00	0.073

Top Guy Pull-Off Bending Design Data

Section No.	Elevation	Size	Actual M_x	Actual f_{bx}	Allow. F_{bx}	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y	Actual f_{by}	Allow. F_{by}	Ratio $\frac{f_{by}}{F_{by}}$
	ft		lb-ft	ksi	ksi		lb-ft	ksi	ksi	

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T1	190.6 - 175.35	4 1/2x3/8	11.89	0.113	27.000	0.004	0.00	0.000	27.000	0.000
T6	100.1 - 80.1	C4x5.4	12.95	0.081	21.600	0.004	0.00	0.000	27.000	0.000
T8	60.1 - 40.1	C4x5.4	12.95	0.081	21.600	0.004	0.00	0.000	27.000	0.000

Top Guy Pull-Off Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	190.6 - 175.35	4 1/2x3/8	0.092	0.004	0.000	0.096 ✔	1.333	H2-1 ✔
T6	100.1 - 80.1	C4x5.4	0.080	0.004	0.000	0.083 ✔	1.333	H2-1 ✔
T8	60.1 - 40.1	C4x5.4	0.073	0.004	0.000	0.076 ✔	1.333	H2-1 ✔

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T4	140.1 - 120.1 (453)	C10x15.3	3.59	3.49	58.7	21.600	4.4900	208.60	96984.00	0.002
T4	140.1 - 120.1 (454)	C10x15.3	3.59	3.49	58.7	21.600	4.4900	2302.44	96984.00	0.024
T4	140.1 - 120.1 (457)	C10x15.3	3.59	3.49	58.7	21.600	4.4900	191.00	96984.00	0.002
T4	140.1 - 120.1 (458)	C10x15.3	3.59	3.49	58.7	21.600	4.4900	2262.04	96984.00	0.023
T4	140.1 - 120.1 (461)	C10x15.3	3.59	3.49	58.7	21.600	4.4900	193.55	96984.00	0.002
T4	140.1 - 120.1 (462)	C10x15.3	3.59	3.49	58.7	21.600	4.4900	169.07	96984.00	0.002

Torque-Arm Top Bending Design Data

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T4	140.1 - 120.1 (453)	C10x15.3	-31577.08	28.069	21.600	1.299	-0.00	0.000	27.000	0.000
T4	140.1 - 120.1 (454)	C10x15.3	-27251.42	24.223	21.600	1.121	-0.00	0.000	27.000	0.000
T4	140.1 - 120.1 (457)	C10x15.3	-31304.50	27.826	21.600	1.288	0.00	0.000	27.000	0.000
T4	140.1 - 120.1 (458)	C10x15.3	-27463.50	24.412	21.600	1.130	0.00	0.000	27.000	0.000
T4	140.1 - 120.1	C10x15.3	-31544.8	28.040	21.600	1.298	0.00	0.000	27.000	0.000

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
	(461)		3							
T4	140.1 - 120.1	C10x15.3	-30896.3	27.463	21.600	1.271	-0.00	0.000	27.000	0.000
	(462)		3							

Torque-Arm Top Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T4	140.1 - 120.1 (453)	C10x15.3	0.002	1.299	0.000	1.302 ✔	1.333	H2-1 ✔
T4	140.1 - 120.1 (454)	C10x15.3	0.024	1.121	0.000	1.145 ✔	1.333	H2-1 ✔
T4	140.1 - 120.1 (457)	C10x15.3	0.002	1.288	0.000	1.290 ✔	1.333	H2-1 ✔
T4	140.1 - 120.1 (458)	C10x15.3	0.023	1.130	0.000	1.154 ✔	1.333	H2-1 ✔
T4	140.1 - 120.1 (461)	C10x15.3	0.002	1.298	0.000	1.300 ✔	1.333	H2-1 ✔
T4	140.1 - 120.1 (462)	C10x15.3	0.002	1.271	0.000	1.273 ✔	1.333	H2-1 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T1	190.6 - 175.35	Leg	ROHN 2.5 X-STR	1	-14927.60	66498.57	22.4	Pass
T2	175.35 - 160.1	Leg	ROHN 2.5 X-STR	29	-13270.70	66498.57	20.0	Pass
T3	160.1 - 140.1	Leg	ROHN 2 STD	56	-34169.80	37604.33	90.9	Pass
T4	140.1 - 120.1	Leg	ROHN 2 STD	113	-36462.60	37555.67	97.1	Pass
T5	120.1 - 100.1	Leg	ROHN 2 STD	170	-28353.30	37537.54	75.5	Pass
T6	100.1 - 80.1	Leg	ROHN 2 STD	228	-33345.10	37531.28	88.8	Pass
T7	80.1 - 60.1	Leg	ROHN 2 X-STR	285	-31342.50	51431.54	60.9	Pass
T8	60.1 - 40.1	Leg	ROHN 2.5 STD	342	-34332.30	51062.96	67.2	Pass
T9	40.1 - 20.1	Leg	ROHN 2.5 STD	375	-32375.20	51062.96	63.4	Pass
T10	20.1 - 4.85	Leg	ROHN 2.5 STD	406	-29043.90	50903.13	57.1	Pass
T11	4.85 - 0	Leg	ROHN 2.5 X-STR	433	-30985.10	82667.32	37.5	Pass
T1	190.6 - 175.35	Diagonal	P1.5x.058	25	-2360.27	5298.14	44.5 64.3 (b)	Pass
T2	175.35 - 160.1	Diagonal	P1.5x.058	38	-1934.84	5298.14	36.5 51.9 (b)	Pass
T3	160.1 - 140.1	Diagonal	P1.5x.058	65	-2121.40	5242.38	40.5 54.6 (b)	Pass
T4	140.1 - 120.1	Diagonal	P1.5x.058	167	-1506.92	5242.38	28.7 33.0 (b)	Pass
T5	120.1 - 100.1	Diagonal	P1.5x.058	225	-751.60	5242.38	14.3	Pass
T6	100.1 - 80.1	Diagonal	P1.5x.058	252	-1210.82	5242.38	23.1 29.6 (b)	Pass
T7	80.1 - 60.1	Diagonal	P1.5x.058	335	-767.56	5242.38	14.6	Pass
T8	60.1 - 40.1	Diagonal	P1.5x.058	350	-1721.11	5309.43	32.4 38.8 (b)	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T9	40.1 - 20.1	Diagonal	P1.5x.058	404	-1533.48	5309.43	28.9 36.2 (b)	Pass
T10	20.1 - 4.85	Diagonal	P1.5x.058	417	1089.13	8826.21	12.3 29.8 (b)	Pass
T2	175.35 - 160.1	Top Girt	P1.5x.058	32	-349.77	6191.77	5.6 9.4 (b)	Pass
T3	160.1 - 140.1	Top Girt	P1.5x.058	60	305.48	8826.21	3.5 8.4 (b)	Pass
T4	140.1 - 120.1	Top Girt	P1.5x.058	116	-2484.63	6142.88	40.4 65.4 (b)	Pass
T5	120.1 - 100.1	Top Girt	P1.5x.058	172	346.80	8826.21	3.9 9.5 (b)	Pass
T6	100.1 - 80.1	Top Girt	P1.5x.058	229	296.10	8826.21	3.4 8.1 (b)	Pass
T7	80.1 - 60.1	Top Girt	P1.5x.058	287	393.71	8826.21	4.5 10.8 (b)	Pass
T8	60.1 - 40.1	Top Girt	P1.5x.058	345	242.68	8826.21	2.7 6.6 (b)	Pass
T9	40.1 - 20.1	Top Girt	P1.5x.058	377	-370.90	6191.77	6.0 13.6 (b)	Pass
T10	20.1 - 4.85	Top Girt	P1.5x.058	410	240.53	8826.21	2.7 6.6 (b)	Pass
T11	4.85 - 0	Top Girt	14x3/16	436	2777.82	75581.10	3.7	Pass
T1	190.6 - 175.35	Bottom Girt	P1.5x.058	9	-275.32	6191.77	4.4 8.8 (b)	Pass
T2	175.35 - 160.1	Bottom Girt	P1.5x.058	34	-676.24	6191.77	10.9 20.7 (b)	Pass
T3	160.1 - 140.1	Bottom Girt	P1.5x.058	61	2465.94	8826.21	27.9 67.5 (b)	Pass
T4	140.1 - 120.1	Bottom Girt	P1.5x.058	119	272.75	8826.21	3.1 7.5 (b)	Pass
T5	120.1 - 100.1	Bottom Girt	P1.5x.058	176	366.25	8826.21	4.1 10.0 (b)	Pass
T6	100.1 - 80.1	Bottom Girt	P1.5x.058	233	449.27	8826.21	5.1 12.3 (b)	Pass
T7	80.1 - 60.1	Bottom Girt	P1.5x.058	289	324.51	8826.21	3.7 8.9 (b)	Pass
T8	60.1 - 40.1	Bottom Girt	P1.5x.058	347	628.51	8826.21	7.1 17.2 (b)	Pass
T9	40.1 - 20.1	Bottom Girt	P1.5x.058	380	256.94	8826.21	2.9 7.0 (b)	Pass
T10	20.1 - 4.85	Bottom Girt	P1.5x.058	412	3939.21	8826.21	44.6 71.7 (b)	Pass
T11	4.85 - 0	Bottom Girt	14x3/16	439	-869.28	63486.65	7.7	Pass
T11	4.85 - 0	Mid Girt	14x3/16	443	-154.89	9245.91	1.7	Pass
T1	190.6 - 175.35	Guy A@189.985	1/2	450	12266.50	13450.00	91.2	Pass
T4	140.1 - 120.1	Guy A@139.485	1/2	460	10750.80	13450.00	79.9	Pass
T6	100.1 - 80.1	Guy A@87.3695	7/16	468	7193.11	10400.00	69.2	Pass
T8	60.1 - 40.1	Guy A@44.9464	3/8	474	4915.99	7700.00	63.8	Pass
T1	190.6 - 175.35	Guy B@189.985	1/2	449	12399.20	13450.00	92.2	Pass
T4	140.1 - 120.1	Guy B@139.485	1/2	455	10798.80	13450.00	80.3	Pass
T6	100.1 - 80.1	Guy B@87.3695	7/16	467	7350.41	10400.00	70.7	Pass
T8	60.1 - 40.1	Guy B@44.9464	3/8	473	4980.93	7700.00	64.7	Pass
T1	190.6 - 175.35	Guy C@189.985	1/2	448	12356.70	13450.00	91.9	Pass
T4	140.1 - 120.1	Guy C@139.485	1/2	451	10627.90	13450.00	79.0	Pass
T6	100.1 - 80.1	Guy C@87.3695	7/16	463	7293.25	10400.00	70.1	Pass
T8	60.1 - 40.1	Guy C@44.9464	3/8	469	4884.91	7700.00	63.4	Pass
T1	190.6 - 175.35	Top Guy Pull-Off@189.985	4 1/2x3/8	4	3362.80	48587.85	7.2	Pass
T6	100.1 - 80.1	Top Guy Pull-Off@87.3695	C4x5.4	464	2738.20	45780.55	6.3	Pass
T8	60.1 - 40.1	Top Guy	C4x5.4	470	2492.47	45780.55	5.7	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T4	140.1 - 120.1	Pull-Off@44.9464 Torque Arm Top@139.485	C10x15.3	457	-2605.30	76183.08	97.8	Pass
							Summary	
						Leg (T4)	97.1	Pass
						Diagonal (T1)	64.3	Pass
						Top Girt (T4)	65.4	Pass
						Bottom Girt (T10)	71.7	Pass
						Mid Girt (T11)	1.7	Pass
						Guy A (T1)	91.2	Pass
						Guy B (T1)	92.2	Pass
						Guy C (T1)	91.9	Pass
						Top Guy Pull-Off (T1)	7.2	Pass
						Torque Arm Top (T4)	97.8	Pass
						Bolt Checks	71.7	Pass
						RATING =	**97.8**	**Pass**

EBI Consulting
21 B Street
Burlington, MA 01803
Tel:1-800-786-2346

Project Title:
Engineer:
Project Descr: T-Mobile

Project ID: CT11156A

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General Footing

File = C:\Users\rapted\Desktop\1_Jobs\818353~1\1_MOVE~1\TOWERF~1.EC6
ENERCALC, INC. 1983-2014, Build:6.14.9.18, Ver:6.14.9.18

Lic. # : KW-06008663 — Licensee : ENVIROBUSINESS, INC.

Description : Tower Foundation

Code References

Calculations per ACI 318-05, IBC 2006, CBC 2007, ASCE 7-05
Load Combinations Used : ASCE 7-05

General Information

Material Properties

f'c : Concrete 28 day strength	=	3.0 ksi
fy : Rebar Yield	=	60.0 ksi
Ec : Concrete Elastic Modulus	=	3,122.0 ksi
Concrete Density	=	145.0 pcf
φ Values Flexure	=	0.90
Shear	=	0.750

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	
Min. Overturning Safety Factor	=	2.0 : 1
Min. Sliding Safety Factor	=	1.50 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	Yes
Use Pedestal wt for stability, mom & shear	:	Yes

Soil Design Values

Allowable Soil Bearing	=	6.0 ksf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	250.0 pcf
Soil/Concrete Friction Coeff.	=	0.450

Increases based on footing Depth

Footing base depth below soil surface	=	4.0 ft
Allowable pressure increase per foot of deptl	=	ksf
when footing base is below	=	ft

Increases based on footing plan dimension

Allowable pressure increase per foot of dep	=	ksf
when maximum length or width is greater	=	ft

Dimensions

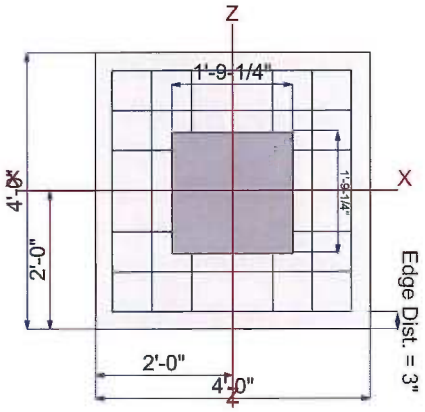
Width parallel to X-X Axis	=	4.0 ft
Length parallel to Z-Z Axis	=	4.0 ft
Footing Thicknes	=	15.0 in

Pedestal dimensions...

px : parallel to X-X Axis	=	21.270 in
pz : parallel to Z-Z Axis	=	21.270 in
Height		45.0 in

Rebar Centerline to Edge of Concrete.

at Bottom of footing	=	in



From TNX
DL=39.7K
DL+ice=84.5K
ice=44.8
DL+0.7ice=39.7+.7x44.8=71.0K

Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	71.0							k
OB : Overburden	=								ksf
M-xx	=								k-ft
M-zz	=								k-ft
V-x	=					0.80			k
V-z	=					0.80			k

EBI Consulting
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Burlington, MA 01803
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Project Title:
Engineer:
Project Descr:

Project ID:

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General Footing

File = C:\Users\rapted\Desktop\1_Jobs\818353~1\1_MOVE~1\TOWERF~1.EC6
ENERCALC, INC. 1983-2014, Build:6.14.9.18, Ver:6.14.9.18

Lic. # : KW-06008663 — Licensee : ENVIROBUSINESS, INC.

Description : Tower Foundation

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.8490	Soil Bearing	5.094 ksf	6.0 ksf	+D+W+H about Z-Z axis
PASS	22.683	Overturning - X-X	4.0 k-ft	90.730 k-ft	+0.60D+W+H
PASS	22.683	Overturning - Z-Z	4.0 k-ft	90.730 k-ft	+0.60D+W+H
PASS	30.791	Sliding - X-X	0.80 k	24.633 k	+0.60D+W+H
PASS	30.791	Sliding - Z-Z	0.80 k	24.633 k	+0.60D+W+H
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	n/a	1-way Shear (+X)	0.0 psi	82.158 psi	n/a
PASS	0.0	1-way Shear (-X)	0.0 psi	0.0 psi	n/a
PASS	n/a	1-way Shear (+Z)	0.0 psi	82.158 psi	n/a
PASS	n/a	1-way Shear (-Z)	0.0 psi	82.158 psi	n/a
PASS	n/a	2-way Punching	19.282 psi	82.158 psi	+1.40D

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc	Zecc	Actual Soil Bearing Stress Bottom, -Z	Top, +Z	Left, -X	Right, +X	Actual / Allowable Ratio
X-X, D Only	6.0	n/a	0.0	4.726	4.726	n/a	n/a	0.788
X-X, +D+W+H	6.0	n/a	0.6349	4.357	5.094	n/a	n/a	0.849
X-X, +D+0.750Lr+0.750L+0.750W+H	6.0	n/a	0.4761	4.449	5.002	n/a	n/a	0.834
X-X, +0.60D+W+H	6.0	n/a	1.058	2.467	3.204	n/a	n/a	0.534
Z-Z, D Only	6.0	0.0	n/a	n/a	n/a	4.726	4.726	0.788
Z-Z, +D+W+H	6.0	0.6349	n/a	n/a	n/a	4.357	5.094	0.849
Z-Z, +D+0.750Lr+0.750L+0.750W+H	6.0	0.4761	n/a	n/a	n/a	4.449	5.002	0.834
Z-Z, +0.60D+W+H	6.0	1.058	n/a	n/a	n/a	2.467	3.204	0.534

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
X-X, D Only	None	0.0 k-ft	Infinity	OK
X-X, +D+L+H	None	0.0 k-ft	Infinity	OK
X-X, +D+Lr+H	None	0.0 k-ft	Infinity	OK
X-X, +D+S+H	None	0.0 k-ft	Infinity	OK
X-X, +D+0.750Lr+0.750L+H	None	0.0 k-ft	Infinity	OK
X-X, +D+0.750L+0.750S+H	None	0.0 k-ft	Infinity	OK
X-X, +D+W+H	4.0 k-ft	151.217 k-ft	37.804	OK
X-X, +D+0.70E+H	None	0.0 k-ft	Infinity	OK
X-X, +D+0.750Lr+0.750L+0.750W+H	3.0 k-ft	151.217 k-ft	50.406	OK
X-X, +D+0.750L+0.750S+0.750W+H	3.0 k-ft	151.217 k-ft	50.406	OK
X-X, +D+0.750Lr+0.750L+0.5250E+H	None	0.0 k-ft	Infinity	OK
X-X, +D+0.750L+0.750S+0.5250E+H	None	0.0 k-ft	Infinity	OK
X-X, +0.60D+W+H	4.0 k-ft	90.730 k-ft	22.683	OK
X-X, +0.60D+0.70E+H	None	0.0 k-ft	Infinity	OK
Z-Z, D Only	None	0.0 k-ft	Infinity	OK
Z-Z, +D+L+H	None	0.0 k-ft	Infinity	OK
Z-Z, +D+Lr+H	None	0.0 k-ft	Infinity	OK
Z-Z, +D+S+H	None	0.0 k-ft	Infinity	OK
Z-Z, +D+0.750Lr+0.750L+H	None	0.0 k-ft	Infinity	OK
Z-Z, +D+0.750L+0.750S+H	None	0.0 k-ft	Infinity	OK
Z-Z, +D+W+H	4.0 k-ft	151.217 k-ft	37.804	OK
Z-Z, +D+0.70E+H	None	0.0 k-ft	Infinity	OK
Z-Z, +D+0.750Lr+0.750L+0.750W+H	3.0 k-ft	151.217 k-ft	50.406	OK
Z-Z, +D+0.750L+0.750S+0.750W+H	3.0 k-ft	151.217 k-ft	50.406	OK
Z-Z, +D+0.750Lr+0.750L+0.5250E+H	None	0.0 k-ft	Infinity	OK
Z-Z, +D+0.750L+0.750S+0.5250E+H	None	0.0 k-ft	Infinity	OK
Z-Z, +0.60D+W+H	4.0 k-ft	90.730 k-ft	22.683	OK
Z-Z, +0.60D+0.70E+H	None	0.0 k-ft	Infinity	OK

EBI Consulting
21 B Street
Burlington, MA 01803
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General Footing

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ENERCALC, INC. 1983-2014, Build:6.14.9.18, Ver:6.14.9.18

Lic. # : KW-06008663 — Licensee : ENVIROBUSINESS, INC.

Description : Tower Foundation

Sliding Stability

All units k

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Sliding SafetyRatio	Status
X-X, D Only	0.0 k	38.243 k	No Sliding	OK
X-X, +D+L+H	0.0 k	38.243 k	No Sliding	OK
X-X, +D+Lr+H	0.0 k	38.243 k	No Sliding	OK
X-X, +D+S+H	0.0 k	38.243 k	No Sliding	OK
X-X, +D+0.750Lr+0.750L+H	0.0 k	38.243 k	No Sliding	OK
X-X, +D+0.750L+0.750S+H	0.0 k	38.243 k	No Sliding	OK
X-X, +D+W+H	0.80 k	38.243 k	47.803	OK
X-X, +D+0.70E+H	0.0 k	38.243 k	No Sliding	OK
X-X, +D+0.750Lr+0.750L+0.750W+H	0.60 k	38.243 k	63.738	OK
X-X, +D+0.750L+0.750S+0.750W+H	0.60 k	38.243 k	63.738	OK
X-X, +D+0.750Lr+0.750L+0.5250E+H	0.0 k	38.243 k	No Sliding	OK
X-X, +D+0.750L+0.750S+0.5250E+H	0.0 k	38.243 k	No Sliding	OK
X-X, +0.60D+W+H	0.80 k	24.633 k	30.791	OK
X-X, +0.60D+0.70E+H	0.0 k	24.633 k	No Sliding	OK
Z-Z, D Only	0.0 k	38.243 k	No Sliding	OK
Z-Z, +D+L+H	0.0 k	38.243 k	No Sliding	OK
Z-Z, +D+Lr+H	0.0 k	38.243 k	No Sliding	OK
Z-Z, +D+S+H	0.0 k	38.243 k	No Sliding	OK
Z-Z, +D+0.750Lr+0.750L+H	0.0 k	38.243 k	No Sliding	OK
Z-Z, +D+0.750L+0.750S+H	0.0 k	38.243 k	No Sliding	OK
Z-Z, +D+0.750Lr+0.750L+0.5250E+H	0.0 k	38.243 k	No Sliding	OK
Z-Z, +D+0.750L+0.750S+0.5250E+H	0.0 k	38.243 k	No Sliding	OK
Z-Z, +0.60D+W+H	0.80 k	24.633 k	30.791	OK
Z-Z, +0.60D+0.70E+H	0.0 k	24.633 k	No Sliding	OK
Z-Z, +D+W+H	0.80 k	38.243 k	47.803	OK
Z-Z, +D+0.70E+H	0.0 k	38.243 k	No Sliding	OK
Z-Z, +D+0.750Lr+0.750L+0.750W+H	0.60 k	38.243 k	63.738	OK

One Way Shear

Load Combination...	Vu @ -X	Vu @ +X	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	0 psi	0 psi	0 psi	0 psi	0 psi	82.158 psi	0	OK
+1.20D+1.60Lr+0.80W	0 psi	0 psi	0 psi	0 psi	0 psi	82.158 psi	0	OK
+1.20D+0.50Lr+0.50L+1.60W	0 psi	0 psi	0 psi	0 psi	0 psi	82.158 psi	0	OK
+0.90D+1.60W+1.60H	0 psi	0 psi	0 psi	0 psi	0 psi	82.158 psi	0	OK

Punching Shear

All units k

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	19.282 psi	164.317 psi	0.1173	OK
+1.20D+1.60Lr+0.80W	16.527 psi	164.317 psi	0.1006	OK
+1.20D+0.50Lr+0.50L+1.60W	16.527 psi	164.317 psi	0.1006	OK
+0.90D+1.60W+1.60H	12.395 psi	164.317 psi	0.07544	OK

EBI Consulting
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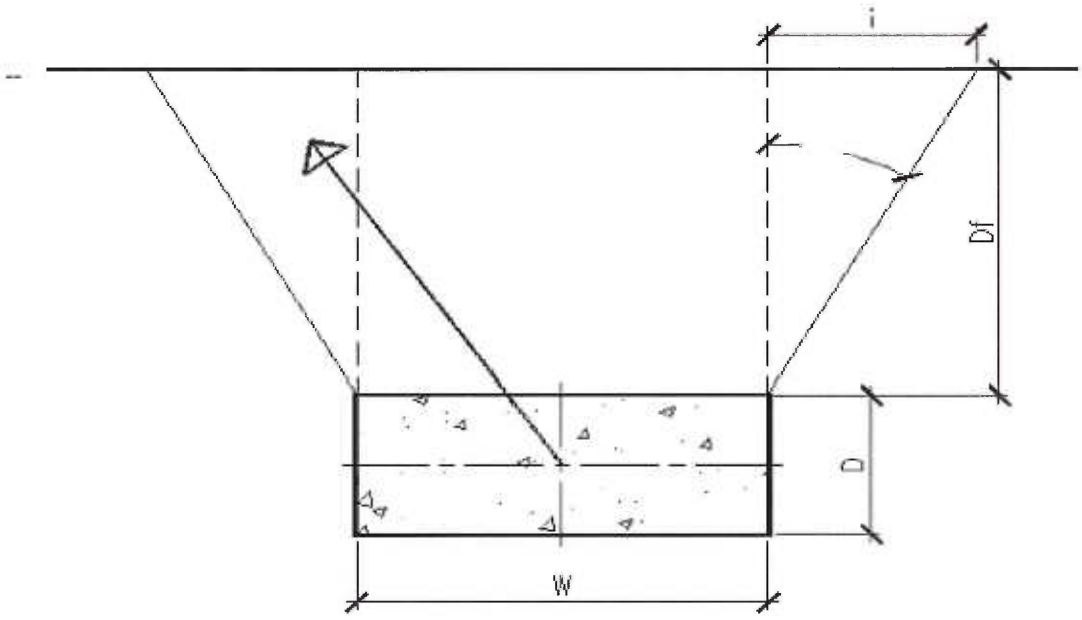
Client T-Mobile
Site ID CT111156A

Uplift and Sliding Capacity for Deadman Anchors, Inner Anchor

Spreadsheet Notes

User Note: Input all values in yellow highlighted regions, actual qualification output in green
This spreadsheet calculates the uplift and sliding capacity of deadman anchors
All units are noted
Anchor Reactions from TNX Tower Output
Foundation Dimensions per Centek's Structural Analysis, dated 12/6/13



Design Parameters

Anchor Radius	68.25	feet
Axial Load On Anchor	8.20	kips
Shear Load On Anchor	8.90	kips
Depth to Top of Footing, Df	8.00	feet
Anchor Width, W	4.00	feet
Anchor Length, L	7.00	feet
Anchor Thickness, D	2.00	feet
Unit Weight of Soil	68.00	pcf (Centek SA 12/06/13)
Unit Weight of Concrete	150.00	pcf
Unit Weight of Water	62.40	pcf
Depth to Ground Water	20.00	ft (not encountered)
Coeffecient of Passive Earth Pressure, Kp	3.00	(estimated)
Angle of Friction, ϕ, degrees	30.00	deg (estimated)

Angle of Friction, ϕ, radians	0.52	radians
Guy anchor resultant load angle, degrees	42.66	deg
Guy anchor resultant load angle, radians	0.744	radians

Soil Volume

Inverted Pyramid Dimension, i	4.62	ft
Effective Pyramid Width at Grade, a	13.24	ft
Effective Pyramid Length at Grade, b	16.24	ft
Inverted Pyramid Soil Volume, V	858.01	cf

Water Volume

Inverted Pyramid Dimension, i	0.00	ft
Effective Pyramid Width at Water, a	0.00	ft
Effective Pyramid Length at Water, b	0.00	ft
Inverted Pyramid Water Volume, V	0.00	cf

Concrete Volume

Volume of Concrete, V	56.00	cf
Buoyancy Effects, Effective Depth Water (concrete)	0.00	ft
Buoyancy Effects, Volume of Water	0.00	cf

Material Weights

Weight of Soil	58.34	kips
Weight of Water	0.00	kips
Effective Weight of Soil	58.34	kips
Weight of Concrete	8.40	kips
Effective Weight of Concrete	8.40	kips

Skin Friction

Type of Soil, (S)and, (C)lay	S	
Top of Block (Horizontal Component)	5.57	kips
Ends of Block, total (Hor. & Vert. Component)	0.00	kips
Ends of Block (Horizontal Component)	0.00	kips
Ends of Block (Vertical Component)	0.00	kips
Front of Block (Vertical Component)	10.39	kips

Uplift Check

Strength Reduction Factor, ϕs	0.75	
Uplift Resistance, Rs	57.85	kips
Anchor Adequate, Yes or No	YES	
Anchor Usage	14.2%	

Sliding Check

Strength Reduction Factor, ϕ_s	0.75	
Passive Earth Pressure	408.00	plf
Passive Earth Pressure	2.86	kips
Surcharge Pressure	3264.00	plf
Surcharge Pressure	22.85	kips
Sliding Resistance	4.85	kips
Total Lateral Earth Pressure	36.13	kips
Sliding Resistance, Rs	27.10	kips
Anchor Adequate, Yes or No	YES	
Anchor Usage	32.8%	

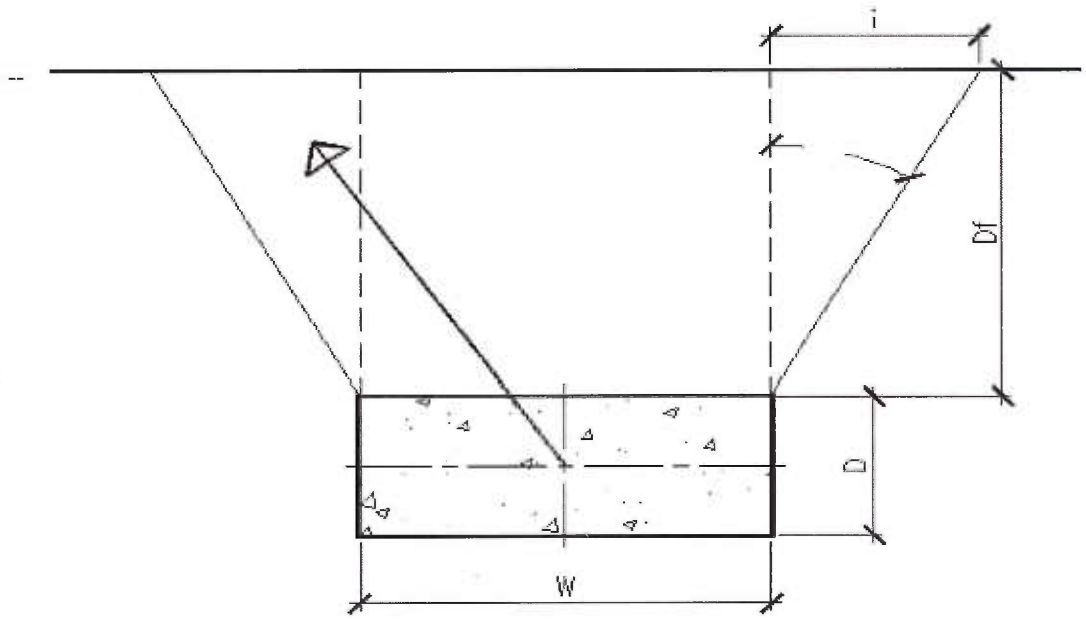
EBI Consulting
environmental | engineering | due diligence

Client T-Mobile
Site ID CT111156A

Uplift and Sliding Capacity for Deadman Anchors, Outer Anchor

Spreadsheet Notes

User Note: Input all values in yellow highlighted regions, actual qualification output in green
This spreadsheet calculates the uplift and sliding capacity of deadman anchors
All units are noted
Anchor Reactions from TNX Tower Output
Foundation Dimensions per Centek's Structural Analysis, dated 12/6/13



Design Parameters

Anchor Radius	99.00	feet
Axial Load On Anchor	27.50	kips
Shear Load On Anchor	17.70	kips
Depth to Top of Footing, Df	8.00	feet
Anchor Width, W	4.00	feet
Anchor Length, L	7.00	feet
Anchor Thickness, D	2.00	feet
Unit Weight of Soil	68.00	pcf (Centek SA 12/06/13)
Unit Weight of Concrete	150.00	pcf
Unit Weight of Water	62.40	pcf
Depth to Ground Water	20.00	ft (not encountered)
Coeffecient of Passive Earth Pressure, Kp	3.00	(estimated)
Angle of Friction, ϕ, degrees	30.00	deg (estimated)

Angle of Friction, ϕ, radians	0.52	radians
Guy anchor resultant load angle, degrees	57.23	deg
Guy anchor resultant load angle, radians	0.999	radians

Soil Volume

Inverted Pyramid Dimension, i	4.62	ft
Effective Pyramid Width at Grade, a	13.24	ft
Effective Pyramid Length at Grade, b	16.24	ft
Inverted Pyramid Soil Volume, V	858.01	cf

Water Volume

Inverted Pyramid Dimension, i	0.00	ft
Effective Pyramid Width at Water, a	0.00	ft
Effective Pyramid Length at Water, b	0.00	ft
Inverted Pyramid Water Volume, V	0.00	cf

Concrete Volume

Volume of Concrete, V	56.00	cf
Buoyancy Effects, Effective Depth Water (concrete)	0.00	ft
Buoyancy Effects, Volume of Water	0.00	cf

Material Weights

Weight of Soil	58.34	kips
Weight of Water	0.00	kips
Effective Weight of Soil	58.34	kips
Weight of Concrete	8.40	kips
Effective Weight of Concrete	8.40	kips

Skin Friction

Type of Soil, (S)and, (C)lay	S	
Top of Block (Horizontal Component)	5.57	kips
Ends of Block, total (Hor. & Vert. Component)	0.00	kips
Ends of Block (Horizontal Component)	0.00	kips
Ends of Block (Vertical Component)	0.00	kips
Front of Block (Vertical Component)	10.39	kips

Uplift Check

Strength Reduction Factor, ϕs	0.75	
Uplift Resistance, Rs	57.85	kips
Anchor Adequate, Yes or No	YES	
Anchor Usage	47.5%	

Sliding Check

Strength Reduction Factor, ϕ_s	0.75	
Passive Earth Pressure	408.00	plf
Passive Earth Pressure	2.86	kips
Surcharge Pressure	3264.00	plf
Surcharge Pressure	22.85	kips
Sliding Resistance	4.85	kips
Total Lateral Earth Pressure	36.13	kips
Sliding Resistance, Rs	27.10	kips
Anchor Adequate, Yes or No	YES	
Anchor Usage	65.3%	

EXHIBIT C

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RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

T-Mobile Existing Facility

Site ID: CT11156A

Killingly/ Margaret Henr1
818 Providence Pike
Killingly, CT 06239

March 16, 2015

EBI Project Number: 6215001659

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	18.71 %

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March 16, 2015

T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Emissions Analysis for Site: **CT11156A – Killingly/ Margaret Henr1**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **818 Providence Pike, Killingly, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limit for the 700 MHz Band is 467 $\mu W/cm^2$, and the general population exposure limit for the PCS band is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **818 Providence Pike, Killingly, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel

2) 2 UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

4) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.

5) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

6) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

7) The antennas used in this modeling are the **EMS RR90_17_02DP** for 1900 MHz (PCS) channels and the **Commscope LNX-6515DS-VTM** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **EMS RR90_17_02DP** has a maximum gain of **14.4 dBd** at its main lobe. The **Commscope LNX-6515DS-VTM** has a maximum gain of **14.6 dBd** at its main lobe. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

8) The antenna mounting height centerline of the proposed antennas is **145 feet** above ground level (AGL).

9) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculations were done with respect to uncontrolled / general public threshold limits.

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T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	EMS RR90_17_02DP	Make / Model:	EMS RR90_17_02DP	Make / Model:	EMS RR90_17_02DP
Gain:	14.4 dBd	Gain:	14.4 dBd	Gain:	14.4 dBd
Height (AGL):	145	Height (AGL):	145	Height (AGL):	145
Frequency Bands	1900 MHz(PCS)	Frequency Bands	1900 MHz(PCS)	Frequency Bands	1900 MHz(PCS)
Channel Count	6	Channel Count	6	# PCS Channels:	6
Total TX Power:	240	Total TX Power:	240	# AWS Channels:	240
ERP (W):	6,610.15	ERP (W):	6,610.15	ERP (W):	6,610.15
Antenna A1 MPE%	1.23	Antenna B1 MPE%	1.23	Antenna C1 MPE%	1.23
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	145	Height (AGL):	145	Height (AGL):	145
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power:	30	Total TX Power:	30	Total TX Power:	30
ERP (W):	865.21	ERP (W):	865.21	ERP (W):	865.21
Antenna A2 MPE%	0.34	Antenna B2 MPE%	0.34	Antenna C2 MPE%	0.34

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile	**4.72**
Verizon Wireless	13.99 %
Site Total MPE %:	**18.71 %**

T-Mobile Sector 1 Total:	1.57 %
T-Mobile Sector 2 Total:	1.57 %
T-Mobile Sector 3 Total:	1.57 %
Site Total:	18.71 %

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Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public exposure to RF Emissions.

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector 1:	1.57 %
Sector 2:	1.57 %
Sector 3 :	1.57 %
T-Mobile Total:	4.72 %
Site Total:	18.71 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **18.71%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

Scott Heffernan
RF Engineering Director

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